# OCCUPATIONAL THERAPY

## IN THE TREATMENT OF THE

# TUBERCULOUS PATIENT

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# Occupational Therapy in the Treatment of the Tuberculous Patient

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# Foreword

This volume was originally planned as text and as reference material for undergraduate students of occupational therapy. More recent discussions and correspondence have indicated that it may have a wider audience, but the original plan has been retained in the interest of continuity of method.

Hence, the discussion of tuberculosis, its control and treatment presents material planned specifically for students who have had a background of general premedical instruction standardized by the Council on Medical Education and Hospitals of the American Medical Association and the Committee on Education of the American Occupational Therapy Association. The authors have profited by suggestions made by members of the Committee on Rehabilitation for the American Trudeau Society after reading drafts of these opening chapters. The committee included: Dr. Frank L. Jennings, Sunnyside Sanatorium, Indianapolis, Indiana, chairman; Dr. Howard W. Bosworth, the Barlow Sanatorium, Los Angeles, California; Dr. A. N. Aitken, Niagara Sanatorium, Lockport, New York, and Dr. Olin S. Pettingill, Essex Sanatorium, Middleton, Massachusetts.

To the many busy clinicians, administrators, school directors and therapists who have supplied material for this volume, have reviewed it in whole or in part during its evolution and have added both qualitatively and quantitatively to its content, the authors take this occasion to express publicly their deep appreciation and acknowledgment.

Beyond this invaluable assistance, neither the members of this committee nor any of the many others who have assisted the authors with material or discussion or criticism should be held accountable for the pattern and contents of

the present text. The authors have attempted to present what, in their opinion and experience, will most readily inform and most effectively stimulate thought in the student of extra-medical service for the tuberculous patient. For example, occupational therapy students will have had previous occasion to employ medical dictionaries and general dictionaries to improve their information and their working vocabularies. Therefore, the everyday jargon employed in most tuberculosis institutions is utilized from the outset in order that the student may prepare herself in this further detail for tuberculosis affiliation. It is not reasonable to expect that any hospital staff should revert to words of one syllable each time a new group of students enters the clinical training program. On the contrary, the student is expected to make vigorous and frequent use, in conjunction with this volume, of a medical dictionary, a general dictionary, of Diagnostic Standards and whatever is accessible from the collateral reading indicated in the chapter bibliographies.

These reference lists furnish a second illustration of the authors' controlling objective. The selection of titles has been made almost solely upon a basis of what may be helpful to the student. There may be more profound or complete articles or books available than those cited, but the authors have selected what may serve the student or the younger practicing therapist.

The demand, from institutions for the treatment of tuberculosis, for trained occupational therapists far exceeds the available supply. This situation is likely to be prolonged by several factors. The number of schools equipped and prepared to train therapists is still far too modest. In psychiatry, neurology, orthopedics, pediatrics—indeed, in most special fields of medicine, and in custodial institutions for special education—increased uses for occupational therapy have opened a wide choice of future opportunities for each graduate occupational

therapy student. The tuberculosis field competes, unavoidably, with other fields for workers who can best serve its patients.

Each of the schools accredited by the American Medical Association presents a curriculum whose main outlines were planned jointly by the Committee on Education of the American Occupational Therapy Association and the Council on Medical Education and Hospitals of the American Medical Association.* These curricula include not only theoretical classroom presentation of selected medical specialties, including tuberculosis, but also require clinical affiliations (resembling internships) in which the student works directly with patients under the supervision of experienced therapists in the application of medically prescribed programs. Such service is required in mental, orthopedic, pediatric and general hospitals. The periods of affiliation in each range from one to six months.

The contents of this volume have been planned to give the student a wide, general preview of tuberculosis treatment and of the role of occupational therapy in that treatment. Considerable space is given to usual difficulties encountered in such service. It seems to the authors as important to divert elsewhere those workers who are reluctant to take such hurdles as to enlist the interest of those who find in them a further challenge. Frank and realistic discussion of such considerations will not exclude the resolute and resourceful personalities who are needed in tuberculosis service.

The authors hope to provide administrators and internists with a sampling from the many applications which have been

*The following are the schools which have been approved by the Council on Medical Education and Hospitals of the American Medical Association: Boston School of Occupational Therapy, Kalamazoo State Hospital School of Occupational Therapy, Milwaukee-Downer College, Department of Occupational Therapy, Mount Mary College, Columbia University, New York University, Philadelphia School of Occupational Therapy, St. Louis School of Occupational Therapy and Recreational Therapy. The following are subject to approval when the first class will have been graduated: Michigan State Normal College, Mills College, Richmond Professional Institute, The Ohio State University, University of Kansas, University of New Hampshire, University of Southern California.

made of occupational therapy in the treatment of tuberculosis. They seek both to make the student of therapy aware of the problems and objectives of the administrators and to portray the therapist's possible contribution toward her objectives.

The student should not expect to find, in any single institution, more than a part of the total program suggested in these pages. Nor should any administrator expect any one therapist or therapy department to apply simultaneously all of the techniques discussed. The technical portions of this volume are actually an anthology, far less the creation of its authors than of those administrators, internists and therapists who have discovered, applied and perfected methods such as those briefly suggested here. Like all anthologies, it is, necessarily, a limited sampling of principal ingredients. The resourceful physician and therapist, working together, will produce variations and improvements upon selections from this material. The quintessence of sound occupational therapy is that it shall be dynamic and individual case treatment, not copy or stencil pattern.

The authors claim only such authority as their first-hand experience with occupational therapy service for patients, extensive contact with hospital administrators and clinicians, and their work with students may confer. This text is intended to facilitate and extend the physician's control and direction of occupational therapy in the treatment of tuberculosis. The authors consistently turn to him as the final authority in all matters relating to treatment.

In the interest of readability, some chapters herein introduce their more abstract material by means of narratives concerning individual patients. This approach is not orthodox in textbook preparation; however, it capitalizes the fact that the patient is likely to be the most interesting factor in tuberculosis service. The characters Josephine and Uncle Paul are much too personal for an orthodox text even though they fall far short of the projection which a novelist might give them. The purpose

which they are intended to serve is to present some phases of tuberculosis as they appear to the patient and to suggest some of the processes of knowing one's patients and their relationships to the environments from which they came and to the alien environment of the hospital. Josephine is not every young woman patient nor is Uncle Paul every tuberculous male in his forties. The therapist who knows her patients will encounter some who resemble these two in one detail or another and others who do not otherwise resemble them at all. This device, like that of discussion questions, is applied only to those chapters in which it may serve a definite purpose.

The discussion questions are not always limited to what is contained in the preceding text. However, if the student utilizes any suitable proportion of the suggestions for supplemental reading, she should have little difficulty in finding answers for such queries.

When one enters the service of a tuberculosis hospital, problems which are encountered every day revise and correct any inappropriate theory with which the novice is encumbered. Adaptation to the realities of the hospital goes more smoothly and more satisfactorily, however, if one has established the habit of synthesis.

The presentation is interrupted occasionally by personal ruminations on the part of the authors, which, they believe, will be readily identified as such and not easily confused with fact-reporting. The inclusion of such editorial material is deliberate. The student is not expected to adopt permanently the philosophy of her lay mentors. But the authors seek to promote the habit of establishing some basic working philosophy of therapy harmonious with medical objectives.

Male students of occupational therapy will endure with patience the use of the feminine pronoun in referring to therapists and students. One of the misfortunes of this profession is that too few males have elected it as a vocation. Among the

results of such unbalance is a considerable overemphasis upon therapy projects suitable chiefly for female patients, despite the fact that need tends to be greater on the male wards. In tuberculosis work, as in other medical specialties, there are numerous hospital situations in which the male therapist with good training has many advantages.

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## PART IV—PLANNING AND GROWTH

# CHAPTER 1

## The Bacillus

**This is a volume on planning occupational therapy for tuberculous patients. It is not a treatise on tuberculosis. But, since the entire treatment of the patient is predicated upon the nature of his disease, the authors have begun with a lay projection of some salient facts regarding tuberculosis which must be absorbed, comprehended and retained in order to make the therapist's work effective. It is presumed that the merely introductory statement which makes up the first part of this book will be supplemented generously by reading in the medical literature.**

Josephine was free, white and twenty, a high-school graduate, employed as a salesperson in a store dealing in office supplies. She lived with her parents, went to movies, dances and informal card parties, had several beaus and some day planned to marry one of them.

Today, we find her a patient in a public tuberculosis hospital. She has just been admitted and, happily, her chances for successful recovery are fair. By considering what has happened to her and what is done about it, we may get a perspective on tuberculosis and the tuberculous patient not always afforded by classic approaches to the subject. In subsequent chapters, we shall learn how Josephine acquired her tuberculosis and how she learned that she had it, and what led her to apply for treatment in this hospital. But our first question, and hers, is "What is tuberculosis?"

Looking at Josephine tells us nothing about the nature of her disease. In fact, the slightly heightened flush which is her only obvious sign rather enhances her attractiveness. Already we have encountered evidence of one characteristic of the disease—its stealthy attack. Often it flies no colors, as

does smallpox or other communicable diseases; it is far more subtle—and, therefore, may be deadly unless vigilance is maintained for our defense.

Here comes a worker from the hospital laboratory. She collects from each patient's bed a waxed paper cup, which she labels with the patient's name and replaces with a fresh container. These cups contain discharges expelled from each patient's mouth, some of which are coughed up from the lungs. The term sputum is applied to this material in hospital usage. In the laboratory to which the technician has led us, these specimens are subjected to routine biological tests.

Selecting the glass slide with Josephine's serial number on its label, the technician manipulates the objective stage of her microscope and then motions us toward her binocular instrument.*

Through its lenses, we see the cause of Josephine's illness. Against a blue field, provided by methylene blue stain, small clumps of tiny crimson rods appear under the high magnification. We see bacilli which were taken from a patient's sputum. The diagnosis is positive for pulmonary tuberculosis.

The laboratory routine employed is substantially that by which Robert Koch determined, in 1882, the definite relationship between the bacillus and disease. Later, we shall note variations in this technique, as Josephine's invaders become more difficult to demonstrate. In her well-worn translation of Koch's original report to the Physiological Society in Berlin, the laboratory technician has underlined a sentence in the summary.

"The bacilli present in tuberculous substances are not only coincidental with the tuberculous process, but are the causes of the process, and . . . we have in the bacilli the real tubercu-

*See the motion picture film, "Diagnostic Procedures," produced by the National Tuberculosis Association and available from state and local tuberculosis associations.

lous virus." Koch's discoveries, which were the culmination of many experiments, firmly established the two facts that tuberculosis is caused by the rod-like bacillus and that without this bacillus there can be no tuberculosis. These facts provide a solid basis both for control measures in tuberculosis and for treatment of the patient.

Koch also pointed the way for subsequent inquiry in his observation: "Since the parasitic nature of tuberculosis is proved, it is still necessary for the completion of its etiology to answer the question of where the parasites come from and how they enter the body."

Meanwhile, Josephine has been transported on a wheeled stretcher to the X-ray department. Here, films are made of her chest and she goes back to bed. When the films have been dried, we view them with Josephine's doctor.

His eye travels first around the shadows cast by the bony structure of the rib cage, looking for abnormalities which appear in some types of chronic respiratory disease. He notes that the position and silhouette of the heart are normal, the right and left diaphragms are normal. Now he begins a minute examination of the lung areas. The shadows of the left apex are clouded and a tiny ring appears near the curve of the first rib, similar to that cast by a recently formed cavity in lung tissues. Clouding does not extend below the second rib.

The hilum shows a distinct white shadow cast by a minute deposit of calcium. The left lower lobe is punctuated by two nugget-like shadows, "ghons," or calcified traces of old, healed tuberculosis foci, put out of action years before. The remainder of the left lung is clear.

In the twin mirrors of the stereoscopic viewer, we see in the filmed record of the right lung something which does not appear clearly upon either of the two flat films. Like a growth of delicate phantom fern, or fans of coral, the pale shadows of a pneumonic exudate common in early tuberculosis may be

seen in the apex of the upper lobe. The other lobes are clear.

The doctor turns to his dictating machine to record, first, what he has seen on the film and then his interpretation: "Pulmonary tuberculosis, moderately advanced, with small cavity in upper left," followed by further details of classification and preliminary plans for treatment. There is little on the roentgenogram or in the wording of its interpretation which makes clear to the novice the seriousness of Josephine's disease or the long treatment and extreme care which will be needed to obtain a recovery which cannot be too glibly promised.

Lest we misinterpret what we have seen in shadow form, our guide makes us known to the pathology department. The pathologist's teaching tools are selected specimens in glass jars and actual lungs from recent post-mortems. With him, we view normal lung structure, from main stem bronchus to alveoli, in order to obtain an accurate picture of what substance casts what shadow on the X-ray film. We observe liquid exudate, which betrays spread of infection because its faint shadow appears on the X-ray film and its presence may eventually dull the normal resonance of the affected area. We examine a small cavity, not unlike the one seen in Josephine's X-ray, and note how it communicates with the bronchi, affording maximum opportunities for spread of bacilli in quantity through both of the patient's lungs as well as opportunities for the infection of others. In a far-advanced stage of the disease are demonstrated caseous bronchial pneumonia and the formation of large hard-walled cavities. By such means, we acquire objective, visual concepts of the differences between healthy lung tissues and tissues which have been invaded by bacilli in sufficient quantity to produce active clinical tuberculosis.

The pathologist directs attention to the fact that while most of the tuberculosis now under treatment in special institutions is pulmonary in locale, other organs may be attacked by the

bacilli, as some of his most spectacular specimens attest.* Man is not the only vertebrate subject to tuberculosis. Our common parasite upon humans also has near relations which cause bovine and avian tuberculosis.

The pathologist points out that invading bacilli may work rapidly or slowly in their human victim, according to the number of invaders and the resistance offered by the body of their host. In one young patient, who had been exposed to an open, active case daily for some time, the colonies of bacilli multiplied and spread almost without hindrance, causing what was once called "galloping consumption." In another patient, the pathologist points out that destruction of local tissues was followed closely by healing processes which served not only to reduce the morbidity to a smaller focus but to limit the internal spread of the infection.

Theories concerning the primary lesion occupy substantial space in the literature of tuberculosis. The authors have felt it necessary to be selective in the quantity of material presented, lest this text grow to impractical proportions. Today, most if not all patients served by occupational therapists in tuberculosis institutions will be under treatment for reinfection type of tuberculosis, whatever the chronological age of the patient. Hence, it is probably sufficient to report here that the tuberculosis movement passed through a period in which many workers hoped to control the disease through preventorium treatment of first infections. The trend of more recent opinion is to the general effect that children so infected may be at least as well off in their own homes provided frequent medical check-up, instruction and adequate nutrition are available and

*Treatment of extra-pulmonary tuberculosis is not discussed at length in this volume because, between her orthopedic training and her tuberculosis training, the graduate therapist will find her preparation adaptable to the methods of treatment usually adopted by phthisiologists. Reference to special works on extra-pulmonary tuberculosis is included in the bibliography which concludes this chapter.

further exposure to direct infection is effectively prevented. Some preventoria remain, for the wish to serve children is popular. Few boards of hospital trustees which operate preventoria today are likely to employ trained therapists.

Let us recapitulate before going further. We have seen patients not obviously different in general appearance from well persons. We have seen the parasite, under high magnification, which is the cause of the disease and without which the disease cannot occur. We have seen roentgenographic shadows characteristic of tuberculous foci in the chest. We have seen lung tissues in health and some of the destruction which is characteristic of the advance of tuberculosis, including exudate, pneumonias, cavitation. We have observed some exhibits of healing, including fibrosis or scarring, and calcification. We have the materials with which to comprehend the statement, often repeated by clinicians and internists, that no two cases are alike and that diagnosis and therefore treatment are necessarily an individual procedure.

Our guide has deliberately interrupted our contemplation of the bacillus, lest its minute size lead us to underestimate its virulence. Now that we have indelibly imprinted in visual terms what the disease does to lung tissues, we may profitably return to the laboratory for further consideration of the bacillus. We find that the laboratory, like the rest of the hospital, fits its main objectives to the realities of the bacillary problem *in vivo*. By observing its routines we may acquire the material for an improved understanding of diagnosis, treatment and control. Synthesis may be supplied, earlier or later, by the logical processes of classroom lectures.

The routine sputum examination which we first observed is known as the direct smear method. It is adequate, frequently, to establish positive diagnosis of active tuberculosis. A positive finding is entirely reliable if the laboratory technique is standard and thorough. On the other hand, a negative finding is