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PROGRESS IN MEDICAL TRAINING AND RESEARCH IN THE U. S. S. R.[1]

By ALEXANDER A. TROYANOVSKY

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I HESITATE somewhat in presenting a subject in which I am not a specialist before a distinguished group of this kind, and I am sure you will not expect me to have mastered the tongue-twisting words which are in common usage in a discussion among members of the medical profession. I must therefore confine myself to a somewhat general presentation of the progress of medical work in the Soviet Union. In my country the problems of the health and well-being of the community are so integral a part of our whole program, however, so much attention is devoted to them in our press, in our meetings and congresses, in our whole planning program, that the layman can not escape being in constant touch with the activities in the field. In my own work I have thus had the opportunity to become somewhat familiar with medical problems in the Soviet Union.

In the effort to establish social conditions that will make for a healthier citizenry I am sure we have a common ground of interest and can find a common vocabulary. In the field in which I am now functioning, in the field of helping to establish peaceful relations among all the nations, and in particular of helping to strengthen the bonds of friendship and mutual help between your great country and the Soviet Union, I am sure we also speak the same language. In the attempt to find a way of wiping out the disease of war, of replacing it by peaceful cooperation among the

[1] Presented on June 26, 1935, before the Section on Medical and Biological Sciences of the American-Russian Institute of Chicago. A. J. Carlson, Chairman of the Section; B. S. Levine, Secretary of the Section; Wm. H. Walsh, Executive Secretary of the Institute.

peoples of the world, I am sure we have the same goal and the same tongue.

To understand the problems and shortcomings and at the same time to appreciate the progress of the socialized medical service that exists to-day in the Soviet Union, it must be considered against the background of what was handed down to us from the Tsarist régime. I do not intend to burden you with the details of that background—merely to remind you of the terrific annual toll exacted from the population of Russia by social, epidemic and other diseases, the debilitating effect on whole areas of such scourges as trachoma and malaria and in general the abnormally high morbidity and mortality rate, due to the widespread illiteracy and poverty of the population and the unbelievably inadequate medical care provided for them.

In spite of this background and the further damage to the health of the nation resulting from the years of war and the famine of 1921, the general mortality rate has been reduced by one third and the infant mortality rate has been halved since the revolution, and our population has increased by about 30,000,000 since 1918.

In all Russia there were less than 20,000 doctors in 1913, so there were vast areas left to the mercy of the overworked, poorly trained feldchers or without any medical help whatsoever. Last year we had over 80,000 doctors in the Soviet Union, four times as many as before, but still far from enough. To train even this many doctors quickly before we really had adequate facilities has meant a certain sacrifice in the quality of the training. We have now reached a point however, in view of steadily improving economic conditions and organization of our public health service, where we can turn our attention to the problem of not merely increasing still further facilities for medical education, but of turning out far better-trained physicians.

Before reviewing recent steps that have been taken in this direction it might be well to touch briefly on the organization of medical work in my country.

While there is a unified program of health service for the whole Soviet Union, each of the seven constituent republics has its own independent Commissariat for Health. The Commissariat for the RSFSR quite naturally serves as a model for the others, and Gregory Kaminsky, who is the Commissar for Health of the RSFSR, holds the post of general sanitary inspector for the whole Soviet Union, which means that assistance and information from Moscow are always at the disposal of each republic and that certain sanitary standards are obligatory for the whole country. But there is no federal health body, since the health of the population is considered one of the cultural matters in which the various national groups have a large degree of autonomy and the type of health service varies considerably in different sections of the country—in certain primitive Asiatic sections, for example, where it is necessary to teach the use of soap, and among the tribes of the Far North which still believe in their medicine men. The health commissariats have their branches throughout the country in places corresponding to the political divisions, down to the local soviets. The Soviets of the republics, regions, cities, districts, all have health sections through whom local problems are coordinated with the general program. The Commissariats of Health have supervision over all matters in any way concerned with the health of the population. Even the medical schools and colleges are under their control. Only the railroads and the army, for administrative reasons, have independent health service. We believe that the care of the health of our people is as much the responsibility of the state as education.

Over 90 per cent. of the physicians in the USSR are regularly employed in state institutions—in the hospitals, polyclinics, dispensaries, factory and district health stations and so on that make up the public health system. They are paid regular salaries and their patients receive free treatment. The usual time they are required to give in their official job is from 3½ to 6 hours, and the aim is that they should not receive more than six patients on the average in an hour. In their outside time they may, if they wish, treat private patients and receive fees. However, practically the entire population has its health needs taken care of through the wide-spread social insurance system, which is a charge on the place of work, not on the individual. More usual than for the physician to have outside private practice has been the holding of more than one position. This has come about both as a result of the shortage of physicians and of the inadequate salaries formerly paid. This, however, has recently been prohibited except in special cases by government decree.

At our Congress of Soviets held in January the medical situation was thoroughly discussed, instructions were drawn up for specific improvements, and it was voted to appropriate exactly twice the sum for public health in 1935 as was spent in the preceding year. One of the first steps in the direction of carrying out the resolutions of the congress was a decree issued in March providing for greatly improved material conditions for doctors and medical workers. Salaries have been almost doubled for large sections of doctors specializing in various fields.

In considering the organization of Soviet medicine it must be kept in mind that there is no separation, such as exists elsewhere, between the administration

of public health and the administration of medical service, and no separation between curative and preventive medicine. The state considers itself responsible for the health of each individual and for the whole community, both from the point of view of insuring greater efficiency of its citizens as workers and from the point of view of providing that richer and more joyous life for every one which is its ultimate goal. The Soviet doctor, removed from the field of monetary competition and from the necessity of collecting fees from individuals, is expected to and is free to concern himself not merely with curing existing ills, but with searching out and abolishing their causes, with keeping the whole community well.

The special type of institution being developed to carry out this program is known as the "unified polyclinic." In the regular health system there are of course the general and specialized dispensaries and hospitals, the "mothers' and babies' centers," the venereal and tuberculosis centers, the factory and district health stations, numerous sanatoria, and so on. But this new type of institution is developing in all the larger centers and bids fair to be the main type of health institution of the future. These centers are well staffed with diagnosticians and specialists in the chief branches of medicine and actually take over the supervision of the health problems of an entire district. They are supposed to locate foci of morbidity and industrial causes of disease and carry out the necessary prophylactic measures. They are responsible for inspection of homes, food and water supply as well as the medical treatment of the individual and his health education, and for healthy conditions of work in the factory or industrial establishment.

The unit of attention is not only the individual, but also the family, for the health problem of the patient is assumed to be tied up with the health problem of the family, with work and food and living conditions, types of amusement and the health of neighbors, too. Further, every patient on first applying must be exhaustively overhauled, passing through all the departments. Complete records are kept both of the patients and of general conditions, and experience and knowledge shared in periodical conferences with similar institutions.

The concentration of medical practice in such centers as well as in the less comprehensive dispensaries and the large hospital units and sanatoria makes it possible for all Soviet doctors to work not as isolated units but in constant contact with a group of doctors and in this way to keep in regular touch with every branch of the medical profession. This goes a long way to offset the over-specialization which has been one of the faults of our medical training and which we are now trying to overcome.

An interesting development is the night sanatorium, where workers with a tendency to tuberculosis or some other incipient trouble may go for definite periods to be built up by special care and diet under medical supervision while still on their jobs. Similarly, "day prophylactoria" are provided for school children who need special care. We are also endeavoring to provide more efficient health service in all village districts and to build up similar organizations there.

Since it is axiomatic that the basis of health is laid in infancy, our first attention has always been for the care of mothers and children. Our labor laws safeguard women in active life from overstrain during the period of pregnancy and young motherhood and our maternity centers provide medical assistance and instruction throughout the whole period of gestation and infancy. Our aim is to have confinement take place in hospitals wherever possible.

Abortions, as you know, have been legalized in the Soviet Union, a step we found essential in order to combat the high mortality resulting from having the operation performed illegally and under unsanitary conditions. Abortions may be performed only by certain authorized physicians and under hospital conditions. At the same time, there has been wide propaganda against them, and our doctors have always urged women not to have recourse to abortions unless absolutely necessary. Contraceptive knowledge and materials have been made freely available through clinics as a preferable method of family limitation.

There has been a good deal printed in the American press of late to the effect that some extraordinary change has recently taken place in the Soviet attitude toward family life. This is an exaggeration of the situation.

Our laws have always provided that a man and a woman need not continue to be married and live together against their will, and that their domestic arrangements were primarily a matter of their individual concern. Our regulations are most stringent about parental responsibility for the children. While the receiving of divorce is a simple process, every effort is made to discourage an irresponsible attitude toward the marriage relationship.

Turning now to the question of medical training, the first improvement to be noted is in the general educational preparation of our medical students. During the period of experimentation in our schools our students often entered the higher educational institutions ill prepared in certain basic subjects. The more systematic training that has been introduced in our lower schools in the past few years has had its immediate reflection in the work of our newly enrolled medical students. There was a tendency for students to select

specialties too early, but gradually this situation has been vastly improved.

It is our plan that eventually all young people shall complete ten years of general schooling before undertaking any specialization at all. Since our country is still handicapped by lack of sufficient skilled workers and technicians in every field, we have had to make a temporary arrangement for specialization in certain cases after the seventh year. For this purpose we have developed the "technicum," a sort of technical or professional high school. In the medical field there are in the RSFSR alone over 150 of these technicums attended by about 40,000 students who are trained for the less highly skilled posts in the medical profession —as assistants, technicians, inspectors, nurses. In the technicums, as in all Soviet schools, theoretical and practical work are closely combined. The technicums are usually connected directly with some medical institution where the students do regular practical work in connection with their studies. Regular jobs are found for technicum students immediately after graduation. Those showing special aptitudes may, of course, go on to the medical colleges or scientific research institutes, but they are required to do a practical job for a specified period first. They may also take courses equivalent to college medical courses while continuing their practical work.

Our medical colleges and institutes, which are receiving particular attention now, have a five-year course and may be entered on completion of ten years of regular schooling. Students are carefully chosen by a special commission on the basis of examinations. They receive government stipends which cover all their expenses throughout the entire course. It may be said that the standards of medical education which we inherited from the old régime were good, but facilities were extremely limited. There were only 13 medical colleges in 1913 in all Russia. In 1934 there were already 36 medical colleges in the USSR, with an enrolment of 48,000. They are situated in all parts of the country, not only in Moscow, Leningrad, Kharkov and the other larger cities but in the North Caucasus, Central Asia, Eastern Siberia, Kazakstan and Far Eastern Region.

Certain highly important changes in our system of medical education have been introduced in our medical colleges during the past year on the basis of a governmental decree issued at the beginning of the school term. The decree emphasized that too much attention had been given in recent years to the training of medical specialists in the field of public hygiene at the expense of the curative and prophylactic field and, chiefly, that there was too little time devoted to general medical knowledge.

Accordingly, the decree provides for the establishment in all the medical institutes of the USSR of faculties for the teaching of curative medicine, which only in the fifth year shall be divided into specialized courses in therapeutics, surgery, obstetrics and gynecology. Faculties for training pediatrists are to be established in fourteen of the medical colleges. Faculties for training in sanitation, bacteriology and epidemiology and food hygiene are to be established in ten medical colleges, with specialization in one of these branches to begin only in the fifth year. Previously each medical college had three separate faculties—one for general curative and prophylactic medicine, surgery and dentistry, one for public health, sanitation and food hygiene, and one for obstetrics, gynecology and pediatrics. The student could choose one of these to the exclusion of the others. Under the new system this arrangement of separate faculties is permitted only in certain of the colleges, and the number of students enrolling in the special faculties is strictly limited. Thus 75 per cent. of the students will be enrolled in the curative faculties, 15 per cent. in the special pediatrics faculties and 10 per cent. in the special sanitation and hygiene faculties. But for the first two and a half years students in all the faculties will receive the same general theoretical training. Students of the faculty of curative medicine may specialize after they have completed the five-year course by serving as internes in the clinics of the institutes for advanced training, medical institutes or hospitals.

The decree also outlines a plan for progressively increasing the number of medical students enrolled each year from 15,610 in the fall of 1934 to 103,610 in 1937. This program is a definite part of our second five-year plan and subject to as strict fulfilment as are our schedules for production of heavy industry, consumers' goods, and so on. It is based on careful calculations of our material and human resources and on the expected progress from year to year.

In general, it should be noted that in our medical training practical work is combined with theoretical work every step of the way. During the first year the student assists in minor medical and surgical cases, during the second, does actual nursing, and during the last three years, practical medical work in hospitals, polyclinics and dispensaries. Before graduation all students are required to complete a "diploma project." A special period is allotted for this, after the completion of the regular course. For this purpose the students are allowed at least two months free of all other work. The project consists of an analysis of clinical material gathered by the student in whatever special field he chooses and a correlation of the student's own observations with the theoretical training received. The material must be prepared in literary form and illustrated with appropriate charts and dia-

grams. Arrangements are made for the student to receive regular assistance and advice from a professor of the faculty under which he has been studying and to accompany the professor on his rounds. Professors, incidentally, are usually engaged in active work. When the project is completed, the student is required to make a report on his findings before a special commission. Examinations are held by state boards appointed by the various Commissariats for Health, and licenses to practice or to carry on further scientific work issued on the results.

In order that all physicians should continue the regular study of modern developments in the field of medical science and keep constantly abreast of the latest achievements in their particular field, we require that physicians, in the centers where there are facilities, take periodic courses to brush up their knowledge while continuing their regular work, and that doctors in the rural sections or remote parts of the country return to the city to take special courses every three years. For this purpose there exists in Moscow a "Central Institute for Advanced Training of Physicians" with courses covering fifty specialties, and such institutes are being established at central points all over the country. The regular salary of the physician is paid to his family during this period; he himself receives a stipend for his expenses, and his transportation and room rent are provided for by the state. Attendance at lectures is required, and examinations are held at the end of the course. On graduation, young doctors are usually sent for three years' practical training in the province, on completion of which they come back for several months at the institute before entering upon their regular jobs. Thousands of doctors have already received training at these institutes, and it has now been made obligatory for every member of the medical profession to attend them.

In the field of scientific research in medical problems the tendency is wherever possible to apply scientific research to our practical needs. Which is not to say that purely scientific problems are neglected. Indeed, we make every effort to provide the necessary facilities for those medical scientists who prefer to work along purely theoretical lines. Every branch of our public health service has a scientific research institute to guide its practical work. Graduates of the medical colleges may enter these institutes to carry on postgraduate work. There are now over 250 of these scientific research institutes throughout the Soviet Union and there are also scientific research departments for graduate work in most of the medical colleges. The necessity of bringing the scientific research institutes and the colleges into closer contact is a problem we are now working on.

These institutes not only give advice and assistance on practical problems, but in many cases actually direct and organize the work. Thus the Tropical Diseases Institute not only carries on intensive research into the origin and cure of all forms of tropical disease, but actually directs the anti-malaria campaigns. In the past few years great advances have been made in fighting the malaria mosquito and its larvae by chemical means with the help of airplanes. The Central Health and Welfare Institute and its local branches are engaged in actual problems connected with the public health service on the basis of data collected from every part of the country. In it are trained the directing staffs for the public health service. There are micro-biological institutes, which apply their findings in fights against epidemics. The Institute for the Health Protection of Young Children not only carries on scientific research work in connection with the medical and educational problems of early childhood and the treatment of sick children, but actually organizes and supervises a chain of model creches and trains personnel for them. It has a polyclinic for infants staffed with specialists in various fields and a training department for young doctors and nurses specializing in children's diseases. The institute has a scientific research worker, a teacher and physician attached to each district in Moscow to observe and advise on general health conditions for young children.

The State Dermato-Venerealogical Institute has done a great deal to reduce the incidence of venereal disease and assists in the prophylactoria, a special type of home where prostitutes receive medical care and are taught a trade and given an opportunity to earn their living. Recent studies show that whereas in 1914 the number of registered venereal patients per 10,000 of the population was 388.7, the number has been reduced to 73.1 by 1934.

The State Labor Protection Institute has made special studies of occupational diseases and has worked out norms for labor processes that may be performed without injury to the workers' health for incorporation in the labor code. There is a Central Health Resort Institute with a number of branches which has sent out numerous scientific expeditions to determine the exact therapeutic value of the mineral springs, mud lakes, and so on, and the curative effect of climatic conditions on different types of illness.

Chief of the scientific research institutes is the "All-Union Institute of Experimental Medicine." This institute belongs to the group concentrating more fully on purely scientific problems. Since 1917 new sections have been added and large funds assigned for laboratories. This institute was reorganized and transferred to Moscow from Leningrad in 1934. This year its staff has reached 1,500, and includes some of our

foremost scientists, among them Dr. Pavlov, whose work on conditioned reflexes is well known in this country. Dr. Pavlov heads a division of the institute remaining near Leningrad, and a special "Pavlov Biological Station" has been built and equipped for his work. He is in charge of a series of clinics in process of organization dealing with metabolism, internal secretions, infections, neuro-surgery and neuro-psychiatry. He is deeply interested in the problem of applying his findings in the treatment of mental and nervous diseases. The institute as a whole is concerned with the study of all the physiological processes of the human organism in relation to the social environment, the application of the most modern achievements of chemistry and physics to medical and prophylactic work and the extension of experimental research.

There is a Central Scientific Council which coordinates the work of all the scientific research institutes so that the research workers will be kept constantly in touch with what others are doing in their own and related fields, and to insure the immediate application of all discoveries of practical value.

In the interest of furthering scientific interchange among all countries, the Soviet Union takes an active part in international congresses. Last year the International Congress for the Study of Rheumatism was held in Moscow. This August we shall be hosts to the International Physiological Congress. I am glad to say that a large delegation of American physicians and scientists will attend, and I hope that some of you will be among them so that you will be able to observe at first hand the contributions the Soviet Union has been able to make to medical science. You will also have the opportunity to study our health system. Experience has proved that it is well devised, although the defects in its functioning are still numerous and there is much room for improvement.

In closing, I should like to express appreciation on behalf of my country to the American medical profession. We owe much of our progress in medical science to the achievements of America in this field. Our doctors who have visited this country have carried back much valuable information. Your doctors who have visited us have reported accurately and favorably on what they have seen. They have also helped us by their constructive advice. Our health authorities invited them on many occasions to give their frank opinion, and the competent criticism received has been welcomed and highly appreciated. May I express the hope for a greatly increased exchange of medical and scientific knowledge and experience between our countries in the future.

OBITUARY

BENJAMIN LINCOLN ROBINSON

ON July 27 American botany lost one of its eminent contributors and Harvard University lost the last of that older group of men who for many years carried on productive botanical work at Harvard and built solidly and well for the future, when Dr. B. L. Robinson died at his summer home at Jaffrey, New Hampshire, in the seventy-first year of his age. His wife, Margaret Louise Casson Robinson, died three years earlier.

Dr. Robinson was born at Bloomington, Illinois, on November 8, 1864. For a time he attended Williams College, later transferring to Harvard and receiving his B.A. degree from the latter institution in 1887, and his Ph.D. degree from Strassbourg in 1889. In 1890 he became an assistant in the Gray Herbarium and in 1892, after the death of Sereno Watson, was made curator, a position that he retained until his retirement in 1935. He was appointed Asa Gray professor of systematic botany at Harvard in 1900.

From 1892 to 1897 he served as editor of the "Synoptical Flora of North America," a comprehensive work initiated by his predecessors, Asa Gray and Sereno Watson. He also served as editor of *Rhodora* for twenty-nine years. His published papers on the floras of North and South America and the Galapagos Islands form an extensive and important series of contributions to our knowledge of the botany of these regions. For many years he devoted his energies to the study of certain groups of the Compositae, becoming the world authority on the North and South American representatives of the Eupatorieae. He also edited, in association with M. L. Fernald, the seventh edition of Gray's "Manual of Botany," the standard descriptive flora of the northeastern United States.

Dr. Robinson's services to the Gray Herbarium were noteworthy. Its position, as to financial support, at the beginning of his career as curator in 1892, was very anomalous, for it was in no way financed by Harvard College. In 1897 its assured annual income was only about $3,600, scarcely half the amount necessary, even at that time, for bare maintenance. Aided by the visiting committee, Mrs. Gray, friends of Asa Gray, and by various bequests, the invested funds and the reserve were augmented to somewhat over $526,000, a twenty-fold increase, during Dr. Robinson's tenure of office. By 1900 the need of more commodious quarters was evident, and ten years later congestion had become acute. Between the years 1909 and 1915 funds were procured for the construction of the present model, fireproof, herbarium building, with its dust-proof and insect-proof steel cases, and other very mod-