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The All-Soviet Surgical Congress of 1960

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In Moscow, May 23d to 28th, was held the 27th All-Soviet Congress of Surgery. This most important surgical congress in the Soviet Union is held at indefinite intervals of from 1½ to 4 years, the last one having been held in December, 1958. To it come 1,500 Russian surgeons from all of the 15 republics of the Soviet Union and, indeed, it is deemed a privilege to attend. The representatives are selected by local institutes or societies as delegates to the meeting and when they return home they give reports of the papers given and the conclusions drawn. I was told that if the meeting were thrown open to all members of the medical profession, there would be over 50,000 doctors demanding admittance. There clearly is not an auditorium capable of seating a medical meeting of such proportions.

A special committee of the Minister of Health organized and managed the meeting and a definite effort was made to give it an international flavor. Representatives of 20 countries outside of the Soviet Union were present by invitation of the Minister of Health. India, Red China, most of the countries of continental Europe, the United States, and Canada were represented. From Canada came Dr. Wilfred Bigelow of Toronto to speak on aortic grafts, and from the United States came Dr. Michael De Bakey to speak on arterial occlusive disease, Dr. Ralph Deterling to speak on the characteristics of synthetic arterial grafts, Dr. Waltman Walters to speak on surgery for peptic ulcer, and I to speak on the use use of hypothermia and extracorporeal perfusion for arterial surgery. I might add that at the time they were given all of the these papers received an enthusiastic response from the large audience.

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This trip was made possible partly by travel support from the American Heart Association and partly through the hospitality of the Minister of Health of the U.S.S.R.

Details of the program and the management of the Congress will be found in the article by Dr. Waltman Walters in this issue of ARCHIVES OF SURGERY.

The auditorium, called the "Hall of Columns," was particularly colorful as at one time it was said to be the tallest and largest building in Moscow—three stories high! It was built before the turn of the century as a place for the gala social events of Czarist Russia. The inside is primarily a large ballroom with tiered balconies on three sides of the room. The white enamel finish of the tall colonades and the beautiful cut-glass chandeliers gave an aura of elegance to the proceedings. One could faintly hear in the background the strains of the Viennese waltz and the swishing of the silken gowns! For this occasion, however, the ballroom floor was filled with red plush seats and a large podium for the presidium.

To receive an invitation from the Minister of Health of the Soviet Union is an exciting affair. I was called late in March on the telephone by Mr. Vladimir Ivanov * of the Russian Embassy in Washington who informed me that he had information that a group of surgeons in Moscow would like to invite me to attend a surgical congress about the middle of May and he was calling to find out whether, if I were invited, I would accept. Since the dates given conflicted with two obligations which I had previously made, I requested a day to see if I could clear my schedule. Fortunately, this was possible, and I replied to Mr. Ivanov that I would be happy to accept such an invitation if it were tendered. By the 15th of April, I was beginning to wonder if the surgeons of Moscow had, indeed, changed their minds concerning inviting me. Apparently, the Soviet Union "loses face" if an invitation is declined. But the following day there arrived an official letter in Russian which, upon translation, proved to be a genuine invitation from the Minister of Health to be the guest of the Russian government at the Surgical Congress, which, however, proved to be slated for the 23d to the 28th, instead of the third week, as previously stated. Fortunately, it was again possible to clear this portion of my schedule in order to attend, and since I proposed to describe research, a large portion of which had been done under an American Heart Association Grant, the Research Committee graciously permitted the use of additional travel funds from that grant. Thus, the 21st of May found me leaving Brussels en route to Moscow. Perhaps excerpts from my journal might be of some interest at this point.

DATE: May 21, 1960

PLACE: Brussels, Belgium

At the airport, I joined, by arrangement, Dr. Wilfred Bigelow of Toronto, Dr. René Fontaine, of Strasbourg, and Mr. Adler, Economic Legislative Advisor to the White House en route to Moscow. We boarded the Tu-104 A, a twin-jet of Aeroflot holding about 70 passengers. The inside arrangements are not unlike an old-fashioned Pullman with brass fixtures. We are sitting at the front of the Tourist Class at a table with a lamp. Very comfortable adjustable chairs with more leg room than in U.S. airplanes. The two stewardesses take the coats and hang them. There appear also to be two stewards. The First Class compartment is forward, separated from us by a smoking-room kitchenette. The route is over Amsterdam, Copenhagen, Riga, and Leningrad, nonstop to Moscow. (Why does Aeroflot seem to avoid flying over any part of Germany?)

There are two large toilet-dressingrooms at the rear of the plane, where the noise is greatest. Soap is provided, but a single towel does for all, as at the old pump outside the kitchen door. Only cold water comes from the tap. Lunch of rye bread, caviar, beefsteak, and tea was served just after we flew over Copenhagen.

We landed in Moscow at 18:25. The braking action in the TU-104A is very powerful, but there are no reverse jets used. A large reception committee was on hand to greet us. Boris A. Petrov, Professor in the Sklifosovskiy Institute; Boris Ossipov, Professor in the Institute of Postgraduate Training; P. A. Kuprianov, a two-star General from Leningrad who is Chairman of the Congress; and with him Dmitri Venediktov, whom we first met in Mexico City and again in Munich and who now works officially for the Ministry of Health; Drs. Rosanov and Manevitch, Assistants to Ossipov; two woman doctors, Natailla Martinova, surgeon of Leningrad who speaks fluent French,

* Throughout this article will appear many Russian names which I have only heard, and have never seen in print. I am sure there must be some grievous mistakes in spelling. I can only hope that my Soviet friends will understand and pardon my ignorance of their important language, and accept my apologies for such unintentional errors.

and Isbella Dubinskya, a pediatrician; and finally, but by no means least, our official guide, Victor Krilov, who is Petrovsky's assistant and who is in charge of the translation side of the conference. Victor is married and the father of three girls, aged 12, 9, and 5. We were whisked through customs and immigration with extraordinary speed and I was soon in Petrov's Volga, a 4-cylinder, middle-priced car costing about $10,000 (at the regular exchange of four rubles to one dollar).

Dinner was large and long. Fontaine, Krilov, Dubinskya, Bigelow, and I were joined by Prof. Milinoj Kostic, of Beograd, with his attractive young wife, Antonija. She speaks fluent English. French, however, is the auxiliary language of choice in many groups, as it was in this one.

My room is about 12×12, with a bath and tiny closet, a single bed, and a desk and table. A very small piece of soap was provided, and towels, but for toilet paper, a piece of today's Pravda.

The Moscow Hotel is large and very central, next to Red Square, the Kremlin, etc. Last night being Saturday, in the dining room was a band with a girl singer, playing mostly American and Latin-American jazz. About twenty young couples were dancing in a style not unlike one would see in the "Starlite Room" of any American hotel. No alcoholic beverages of any kind were in evidence—a very sober Saturday night at the Moscow Hotel.

DATE: Sunday, May 22, 1960

PLACE: Moscow, U.S.S.R.

As I write this at 1:30 a.m. Monday, Sunday seems to have been a long, although very pleasant, day. After leisurely breakfast, I cabled home regarding my address, exchanged some money (10 rubles to the buck, as advertised). A short snooze, and then to lunch, where I had two hours with Dmitri Venediktov regarding Soviet medical education. D. V. may soon be one of the Soviets' most influential doctors, I suspect. He is now half-time in the Ministry of Health and also works in Petrovsky's Clinic at the First Medical Institute. He is already the number two man in the Bureau of Foreign Relations of the Ministry of Health.

Then with Victor to discuss slides and talks, etc., followed by a tour of the city during which I was carefully shown (a) the outside of the Kremlin, (b) the University and its view of the city, (c) the Hotel Ukraine, and (d) the Southwest residential district of which Krushchev is so proud, but which consists exclusively of apartment after apartment after apartment, all prefabricated and going up by the numbers. No individual houses are being built here. Shops and schools are allotted carefully, population-wise. A family of six would get "not less than 55 square meters" and would "have a whole apartment to themselves"! This is new policy, as in many of the older apartments rooming facilities are shared by groups larger than a family unit. Victor was careful, propaganda-wise, and assured me that "in Russia we prefer social living to individual homes like in the United States." But I kept thinking of those many attractive homes with a car and a motorboat in the driveway back in Denver and had my own personal thoughts on the subject.

Then to the hotel to clean up and get ready for the opening banquet of the Congress. The meal is always the same—caviar, chicken, and potato salad, cold meat and fish, meat and potatoes, ice cream (raspberry and vanilla), and tea or coffee. Vodka and Georgian wines, white and red, were available for the following toasts, all of which required two-stage interpretation:

1. Greetings from the Chairman of the Congress (Kuprianov): "Welcome to Russia!"
2. Red China: "We are here."
3. U.S.A.: (Walters)—"Surgery and knowledge are international."
4. Belgium (Lorthoior): "Peace."
5. Czechoslovakia: "We like Russia."
6. India (Baliga): "Science exchange is good at a meeting like this, but more important is personal understanding and good will. Coexistence and World Peace."
7. France (Rene Fontaine): Ten minutes.
8. East Germany: "We like Russia."
9. Scotland (Mackey): "Studied Pavlov, and glad to be here."
10. Yugoslavia (Strojanov): "Peace and humanity. Scientific workers must be in the front line fighting for peace."
11. Bulgaria: "We are the pupils of the great Russian Surgery and the Great Russian Science."
12. Poland: "We are here."
13. Rumania: "Glad to be here."
14. Denmark (Husfeldt): "Nothing is won by war. All effort should be to help mankind here and now."
15. Sweden: Tried a few words in Russian, and achieved good will.

Much talk with Petrovsky regarding medical education (via Victor, our interpreter). Then to my room with Bigelow and Husfeldt, where we heard the extraordinary story of Husfeldt's ambulance mission to Budapest achieved almost single-handed. The International Red Cross was totally lacking in ability to help under such circumstances.

Bigelow is working on the idea that the Iron Curtain is not a cover for nefarious deeds, or a device to prevent fraternization or to withhold from the people all outside information, but, rather, a method to keep the guests out on the porch until Mom can get the livingroom cleaned up. This concept is largely ignored by our press. But, also, a holder of this theory closes his eyes to the complete wall against incoming news and

outside opinion. For example, on my portable radio, both the long- and short-wave bands are useless here—every frequency, except the two Russian stations, is jammed with a constant harsh whine. The Voice of America, in addition, has a penetrating code signal which makes safe eavesdropping on this frequency almost impossible! Apparently it is not yet considered safe to allow Ivan to even hear what others think. This is thought control, more than merely keeping prying eyes out of the back yard. In Moscow, one cannot hear the Voice of America, or of France, or of Italy, but only the voice of Moscow.

DATE: Monday, May 23, 1960

PLACE: Moscow, Russia

It is raining and cloudy. It is hard to get used to the sun's rising at 4:00 a.m. and setting at 10:30 p.m., but Moscow is very far north.

Kochergin opened the Congress with a semi-propaganda talk about how great is Russian surgery. Then "election" of the committees took place in a manner much as in our societies; namely, the Chairman of the Nominating Committee read his report and moved the slate be elected, then everyone applauded. Very comfortable way to keep the right people in power!

The talks are translated from Russian into English via portable transistor radio which has earphones. However, they will not translate our talks from English to Russian on these instruments. Therefore, it is proposed that we write our talks, have them translated, and then some Soviet Professor will "read" them in Russian. It will be fun to listen to our own talks, retranslated into English, on the little radio.

After 2:00, lunch of borsht and fish, then to the room to revise my paper in terms of the new rules. It must be cut in half to meet the time limitations.

Invited by Fedor Uglov to dinner at the National Hotel. His room is a suite on the second floor and displays an extremely elaborate heritage of Czarist days. Rich rugs and tapestries, hand-carved furniture, ceiling paintings, etc., allowed one to dream of days when elegance was acceptable.

Deterling, Bigelow, Rob, Venedictov, and I shared Uglov's charm and great hospitality. Small, wiry, smiling, and with a great humanity and charm, he is one of the Soviet's real ambassadors of good will. He told several humorous stories with eclat, and then told of the starvation and terror of the 900-day siege of Leningrad. He estimated that 1,000,000 died of starvation, and no house or building, not one, in all Leningrad, escaped some form of injury from the incessant Nazi bombardment.

DATE: Tuesday, May 24, 1960

WEATHER: Rainy, cold, and windy. The thunder is very deep.

This morning we heard Petrov report on his 1,000 esophageal reconstructions. Without doubt, he is one of the great esophageal surgeons of the world. (We will be visiting the Sklifosovkiy on Friday morning.) Then Petrovsky described his operation for cardiospasm, and there were many discussions of the bougie treatment of children with lye burns with long-term results which seemed to be extraordinarily good.

The life of Krilov's 12-year-old daughter was described at dinner—school at nine on the bus, home at 2:00 with 20 minutes to eat lunch, piano practice from 2:30 to 5:30; then 30 minutes "free" to read the papers, take a walk, etc., dinner, study, and then to bed. Future career: "The Conservatory." A very dedicated and determined young lady who apparently does not laugh much.

A light touch in a sea of intensity is Vladik Tatochenko, a pediatrician. He is a fisherman and knows the difference between the two types of pike in the Moscow River and other important things. It is a relief to find somebody else with a touch of humor and humanity, so predominantly to be seen in Uglov.

DATE: Wednesday, May 25, 1960.

This morning for breakfast at 8:30, sardines, fish cakes, omelette, and coffee. At lunch, "blini" (pancakes with butter, red caviar, and sour cream).

One of Moscow's bright young surgeons, trained by Bakulyev, but now estranged from him, is Meshalkin. Apparently, he will go soon to Novosibersk to be Director of the Institute of Experimental Biology and Medicine under the new major branch of the Academy of Science being established there to develop Siberia's resources. A man can get 4 times pay for working up there for a year or two. A married friend of Vladik's, whose wife was also a physician, came back after two years with 200,000 rubles saved up. That's enough to buy a dacha (summer house).

After the visit to Vishnevsky in the morning, this afternoon I spent shopping with Vladik Tatochenko, who grows on one; he is very frank about life in general. Gum is a big store and we found many nice presents. Then a taxi to 5 stores, none of which could sell us sealed or canned caviar. No caviar to be bought in Moscow to take home!

Then to dinner with Bigelow (vodka, fish, tongue, Tokay, and coffee with ice cream) before the concert which had been especially arranged for the Congress. Many different acts, some very good—(1), (2), and (3) I missed. (4) Igor Besrodnyi, Russia's "third best" violinist. (5) Igor Ilyinski, the Charles Laughton of Moscow. (6) Kousmin and Violet Bovt (ballerina), in the

Adagio from *Esmeralda*. (7) Humorous monologue by Mouranski from Leningrad. (8) Four harpists. (9) A soprano. (10) Ballet Sporta (Amour à la Grec). (11) Lenon Geochlanion: A very outstanding baritone. (12) The Kiss of Tschanit: a slick-chick in a sheath, and a square. (13) Piragot and Pirouette. (14) Puppets.

One idea which Bill Bigelow and I have discussed is the hidden, highly competitive aspect of Soviet life. Striving is serious among students in secondary schools in order for them to be eligible to continue on to college, and there to strive so they may go on to graduate study for a professional life. Then the competition for the good appointments, etc. The system is ruthlessly competitive and is designed to reward the industrious and intelligent. It appears to us that a really key aspect of the system is this: rewards in money and in "kudos" go hand-in-hand; they are intertwined. In our country they are often separated. A man can make money, achieve recognition, or both. But in Russia, he must seek and achieve both—or he will get neither.

Then home to write this diary.

The Institute of Surgery in the name of Vishnevsky:—We changed our street coats for white coats, took our cameras into the O.R. The face mask by American standards was very transparent, and the regard held for asepsis throughout the procedure was marginal. Vishnevsky operates without gloves, because of an allergy, it is said. The O.R. was large. The overhead operating light was excellent. In the O.R. the audience comprised 20-25 foreign doctors; downstairs in the TV room (3 screens) were 150-200 Soviet surgeons. The color TV broadcast was of excellent quality with running commentary in Russian and English. Electronic equipment abounded, but some was apparently primarily for show.

Vishnevsky did two cases, with a very bountiful lunch consisting of salad, ham and cheese, vodka, wine, and cognac, served between the cases (Fig. 1).

Case 1.—A 9-year-old girl with Tetralogy. Could walk 50 yards before dyspnea. Well worked-up with catheterization and angiocardiograms. Oxygen saturations were SVC 57%, RV 67%, BA 69%, RV pressure 103/5, Hgb. 21 grams. Anesthesia: GOE.

The approach was through the bed of the left 5th rib. Cautery was not used. Because left subclavian artery was small, a lyophilized homograft 1 cm. in diameter was placed between the left subclavian and the pulmonary artery, end-to-side in both cases, using the anastomosis ring of Donetsky. A very slick job taking about 35 minutes. This ring, devised in this clinic by Donetsky, is a very fine gadget,† simple to use and quick to insert. The vessels, however, must be relatively free of disease or degenerative changes, which, of course, limits its clinical usefulness.

The second case was a pericardial cyst done entirely under local, (¼% procaine in limitless amounts with 2 drops of adrenalin in 100 cc.'s). The patient seemed quite comfortable except at the moment the pleura was opened and the lung collapsed.

Then much picture-taking before we left. The organization of Vishnevsky's Clinic is the following:

Director, Vishnevsky; Associates: (1) Scientific, Protopopov; (2) Clinical, Rugov; (3) Administrative, Denel.

Other surgeons I met were (1) heart surgeon and Chief Diagnostician, Galankin; (2) sharp

† Described and illustrated by Michael De Bakey in his report in Bull. Am. Coll. Surgeons 44:505, 1959.

Fig. 1.—The author and Wilfred Bigelow eat lunch between operations with Vishnevsky and his associate, Protopopov.

first assistant, Anna Kudariabceva; (3) bright young vascular surgeon, Dmitri Donetsky; (4) candidate who helped interpret for me, Valentin Zolotazevska; (5) student of hypothermia, Tsedran Darbinjan, and (6) another assistant surgeon, Alexanda Haznas.

The operations were done with great skill. It is interesting that the entire work-up of the patient, the operation, and the postoperative care was done by surgeons (Galankin especially). Only one internist in the Institute—a consultant.

So now, at 1:30 a.m., to bed!

DATE: May 26, 1960. It is clear and warm, in fact, hot.

This morning to meet Bakulyev at the Institute for Thoracic Surgery. A group of 15 touring American surgeons arrived just as we did, and were very well received. Spent most of our morning with Burakovsky; recently with Vishnevsky, but now at this new Institute.

Set-up: Kolesnikov, Director. Bakulyev, Honorary Founder. Chairs—(1) Burakovsky, congenital heart disease; (2) Kolesnikov, acquired heart disease; (3) Garazimenka (?), lung; (4) Bardiozov, esophagus, and (5) Gilstein, cardiology. Schmoor is now working with Bakulyev at the City Hospital. Demikov is now at Sklifosovskiy. Buchtiazov is physiologist in charge of the laboratory.

Projects in the laboratory include deep hypothermia, pump oxygenator systems, aortic valves (Hufnagel)—replacement of bronchus.

Two interesting postoperative patients seen: a 10-year-old boy, one day postrepair of IVSD, doing well, and a 5-year-old girl, one week after repair of atresia of right ventricle. Operation was to sew superior vena cava to left pulmonary artery via anastomosis clamp (Glenn procedure). Patient looked well and was barely cyanotic.

The clamp was demonstrated by Muraniev, a very dedicated young surgeon, and is, indeed, an engineering marvel. It is said that one can anastomose either arteries or veins and that lumen differences of 1 to 1.5 can be made to match. Like the old-time patent medicine, good for everything, it was claimed that one could use it for anastomosing Fallopian tube, ureter, choledochus, or nerve. However, as noted previously, it is not used much clinically because of the need for fairly normal vessels with which to work.

This afternoon at the Congress, my talk was read by Professor Ognev. I first gave a short prologue in Russian saying "I'm honored to be here," and that "American surgeons are glad we can communicate with our confreres throughout the world, because good communications form the path to peace." The thought was well received, and my effort in phonetic Russian, while I am sure was in the crudest patois, was nontheless clearly understood by the audience, or at least so I was assured by my Moscow friends on the podium.

Then tonight the Bolshoi Ballet: Superb! The lovely old theatre and the graceful rendition of "Swan Lake," some of which I caught in color movies, left a deep feeling of elation. The seats cost from $3.50 up, and every seat was filled with enthusiastic Soviet citizens or tourists. We went with Ninel, who is one of the interpreters assigned to our group, a hard-working, earnest, and attractive young Jewess. Perhaps the reverse of Lenin's name was given her to help her in her race persecution, which is apparently a severe problem in this country.

DATE: Friday, May 27, 1960

Friday was a day of many visits. In the morning to Sklifosovskiy where Petrov made an esophagus out of the right colon and the last 12 inches of ileum in one hour and 45 minutes. Very slick job, done with great skill and the familiarity of having been there a few hundred time before. Petrov and all his team operate in their street shoes, trousers, etc., covered with a plastic apron. The aseptic techniques are relatively relaxed but the form is there, even though the mask is only two layers of gauze thick. The rubber gloves are thin and of good quality. The patient was a 23-year-old man with a gastrostomy. His esophagus was burned when he was a child. Blood was given as needed, although it appeared that a hypotensive drug had been given.

Petrov operates with great decision and the confidence born of experience. One of the best tricks was to put noncrushing clamps on the ileocolic arteries all during the mobilization of the right colon, then he was able to look at the color of the bowel fed only by the midcolic and see if the color indicated viability. Another was a bright light so placed at table level as to facilitate transillumination of the mesenteries.

When we entered the Sklifovoskiy, we first entered a building which was an old church with beautiful friezes and murals; then to the adjacent buildings, the O.R. and the Institute of Cadaver Blood. Visiting at the same time were the previously mentioned group of American surgeons on tour of the midcontinent.

Cadaver blood in plastic containers of about 250 cc. each was used. (The patient received three.) The special instruments of Yudin for the retrosternal tunnel were of particular interest; they come in graded sizes, and finally the one with holes was used as a ligature carrier.

The esophagus was not removed. All of the abdominal procedures were completed, but the upper end will wait three days for and end-to-side ileum to esophagus.

The Sklifovoskiy Institute appears to have the following personnel: Director, Tarosov; Surgeons,

Fig. 2.—Dr. Waltman Walters and Dr. Androsov at the Sklifosovskiy.

Petrov, Androsov, Arapov, Lobschov; Gynecology, Alexandrov; Therapeutic Clinic, Suchingen, with Moysaev, and Glasova, a woman; Pathology, Smollianikov; X-ray, (current professor very old and sick, and thus not seen).

Arapov showed us a young woman two years after coloesophageal replacement who drank water for us. She was in excellent nutrition and quite comely.

We next visited the blood institute, where they were harvesting some cadaver blood. A 67-year-old man had died suddenly in the Metro two hours previously. Apparently, all sudden deaths in the city are brought to the Sklifovoskiy by law. Large cannulae were put into the jugular vein on the left and the dead man then tilted into a steep head-down position. Between two and four liters can be obtained from a single donor. The preservative is sugar, water, and antibiotics; no anticoagulants, since blood after sudden death does not clot (why?). Blood can be taken up to six hours after death—no minimal time was described—and it can be stored five days at 4 C. It is cultured, typed, and cross-matched before use. Can give 3-4 liters to one patient, preferably all from one donor. Oxygen-carrying capacity said to be very good, and no interference with the clotting mechanism of the recipient. Petrov said that 3,000-4,000 transfusions have been given yearly for several years, and he is very satisfied.

We then saw the two-hearted dog with Demikov, who has just come to the Sklifosovskiy from the Thoracic Surgery Institute, demonstrating. Among the projects being studied in the laboratory are tracheotomy in head injury, artificial esophagus, portacaval anastomosis with the Donetsky ring, burns, pancreatitis. No heart surgery being studied here.

My chief informant was a young candidate named Juriy Isakov who spoke excellent English. He was top man in his class at the First Medical Institute in 1955, and then was permitted to start

Fig. 3.—Arapov, the author, and Jurij Isakov at the Sklifosovskiy.

his three-year compulsory service at the Sklifovoskiy instead of an assignment to practice in the provinces. (Again, privileges going with achievement.)

We then had cognac, vodka, wine, and very good hors d'œuvre-type sandwiches. Dr. Androsov and his assistant, Dr. Vladimir Pomeranzev, who has been riding herd on the foreign visitors to the 27th Congress all week, drove me to the Institute for Postgraduate Study. Androsov is an athletic, dynamic man with his head completely bald à la Yul Brunner.

Dr. Ossipov greeted me in his office, where we discussed the Institute and its personnel. In his section, comprising approximately 235 beds, he has 30-35 postgraduate students coming to him each 2 months. In the Institute as a whole, there are 58 chairs of all kinds, of which three are General Surgery—(1) Rosanov (the senior), (2) Ossipov, and (3) Kassanski.

Thoracic, unfilled (Kolesnikov has been invited from the Thoracic Institute); Pediatric Surgery, Dolitsky; Neurosurgery, Aranov.

Dr. Ossipov's staff members are: Assistants, Manevitch, Rosanov, Malvenov; Docent, Zak; Thoracic, Tmara Stipanova; Urology, Effengiev.

We saw a few postoperative patients with Tmara, a very attractive and apparently capable young lady. The two gastrectomies done that morning, one by Rosanov for cancer of the cardia, the other by Manevitch for polyposis, were both back on the ward, quite alert and comfortable. Both were done with local anesthesia, and I must say their condition two hours after surgery was excellent.

Then to the office again, where cognac and champagne flowed in copious quantities! Rosanov has a quiet twinkle in his grey-blue eyes, a well-trimmed, pointed beard, and a very considerable capacity for hard liquor.

Later (with some assistance from Bigelow), we went to the dinner given in our honor by Drs. Bakulyev and Kolesnikov at one of the better restaurants. A very good meal with much toasting

and some singing. It is interesting that diversity of language has kept the world from having any song that is truly international, or even which will do for one continent.

DATE: Saturday, May 28, 1960

Our last day in Moscow dawned clear and bright. Breakfast of kurd cakes and sour cream.

The First Medical Institute is a rambling series of old buildings, two of which are made of logs. (The best building, of course, is for Administration.) Dr. Petrovsky was exploring a cardiac aneurysm. When he got in through the left sixth interspace anterolaterally, sternum cut, he found diffuse scarring. Instead of excising the myocardial infarct, therefore, he raised a pedicled flap of diaphragm and sewed it over the left ventricle. We then saw a movie of the same operation and also of his operation for cardiospasm. This is a complex conception, relative to the cardiac sphincter. A window is cut from the esophageal muscle just above the diaphragm. Mucosa remains intact. A pedicle of full-thickness diaphragm is now sewed in place. We were told that he had treated 50 patients this way in the last 4 years with excellent results. It is alleged that the flap of diaphragm muscle acts as a competent sphincter.

Petrovsky's operating room is an interesting old theater three stories high. The level of asepsis appears to be the most rigid we have seen. We then had cognac and caviar, and I went to the laboratory with Krilov and visited with Dr. W. Ankatov and Dr. Marion Kchodes, who comprise the "pump" team. Many questions were asked me concerning perfusion. Their pump is a plastic bubbler with finger-type rubber internal valves in the pump. It did not appear to be of very modern design but is the one made in the Institute for Research in Surgical Instruments. Uglov also has one in Leningrad. The best part of the visit, however, was the dark beauty of Marion.

Petrovsky's Head of Anesthesia is Dr. Olga Kolutskoj who, in turn, has 24 anesthetists under her.

First Moscow Medical Institute.—Director, Kovanov; (1) Chair of Clinic Surgery (Zhorov), with 6 to 10 assistants. (In charge of third-year teaching); (2) Chairs of Faculty Surgery: (In charge of fourth-year teaching). (a) Surgical Pathology (Ialansky). (b) Topographical Anatomy and Operative Surgery (Kovanov). (3) Chair of Hospital Surgery (Petrovsky). Assisted by Venedictov, Krilov, and others, including 5 aspirants and 4 ordinators. (In charge of fifth-year teaching.)

We then went back to the Congress to hear the report of the chairman of each of the topics. As in so many other European congresses, the chairman officially summarizes the "feeling" of the congress. It is comforting for the delegates to have some "official" point of view to take back with them. It shows, in a way, that the congress has "accomplished" something.

After lunch, we went to the Academy of Medical Science for a short session of speech-making. Dr. Bakulyev is no longer president. Now it is Dr. Blokhin a young (50), capable, personable man of considerable charm. The Academy is independent of the Academy of Science, sending its budget to the Minister of Health directly. Its president, however, sits in the presidium of the Academy of Science. Dr. Blokhin said that it is about 15 years old and has three divisions—(1) Clinical; (2) Experimental Biology and Medicine, and (3) Public Health, Bacteriology, and Epidemiology. There are about 110 active members and 150 associate members. New members are elected once a year, and to be a member it is not necessary to be working in one of the 30 Institutes of the Academy.

The purpose is to organize and control work in the medical sciences and in clinical medicine, and to teach these subjects. It "works closely" with the Ministry of Health, which controls certain medical schools, and with the scientific societies. Petrovsky and Kuprianov are active members; Ossipov, Petrov, and Uglov are invited to meetings (associate members?).

Then to the Hotel Moscow to pack and to dress for the banquet. One might add that the most useless thing in the Soviet Union is a tuxedo. On no occasion is it apparently de riguer to wear one. Knowing this earlier would have lightened my bags by a few pounds!

At the closing of the banquet I met 1. Professor Vladimir Negovsky, Chief of Laboratory of Resuscitation. I promised Dr. Negovsky that I'll send him some reprints of our work in this field. 2. Dr. V. V. Gusov, Department of International Scientific Relations of the Academy of Medical Sciences.

There were innumerable speeches from all countries. The best was by Baliga, President of the Society for Indian-Soviet Friendship. "I am impressed that this meeting is engaged in discussing 'open-heart' surgery while the politicians are discussing the 'open-skies.' I think this meeting is one of 'open-heart,' both scientific and personal." Dr. Arthur Mackay, of the Royal Infirmary, Glasgow, gave a nice talk, too.

Kuprianov is a man with a romantic history. A young lieutenant medical officer in the Czar's guards, a crack outfit, he was in Crimea in 1917. His soldiers mutinied to join the revolution, and he joined them—a dynamic choice! His own caste, of course, disowned him, but he became one of Russia's great surgeons by sheer force of ability. A man of great presence of person and

distinguished mien, he wears the two-star uniform most of the time.

At the party also was Dr. Ialansky, one of the biggest men I have ever seen—6 feet, 7 inches and 400 pounds, I should think. Very friendly. Many protestations of affection were made to me by various surgeons, especially Bakulyev and Petrov. Presents from Petrov (silver snifter), Bakulyev (book on art), Petrovsky (different book on art), and Androsov (lacquered box) embarrassed me by the extent of their hospitable generosity.

Then off in a rush to the Leningrad station to catch the Red Arrow. Russia's crack train is a very modern fast one. Bigelow and I shared a compartment. The bunks are narrow but comfortable. The train is fast and a little rough. I sat up much of the night writing this diary and watching the Russian countryside. It is northern muskeg and forest country. The houses are log cabins, largely, and it might be Alaska or Saskatchewan.

DATE: May 29, 1960. A lovely, sunny Sunday.

Arrived in Leningrad on time at 8:45 to be met by Uglov, his assistants, and three Intourist guides. Dr. and Mrs. De Bakey, Dr. and Mrs. Baliga, of Bombay, Erik Husfeldt of Copenhagen, Wilfred Bigelow, and I comprised the party. We proceeded to the Hotel Europa, where I bought some amber beads in the hotel store.

Then all of us, in two cars, drove to the country home of Uglov about 40 kilometers north of Leningrad on the Baltic sea. All of the people of Leningrad were on the roads walking, bicycling, going by trains, and driving to get to the beaches and the woods to sun. They look very pale, so I guess there is not too much sun to be seen in Leningrad. Uglov's house is on two lots of sandy pine forest about ¼ mile from the sea. He built it himself, for a cost of 200,000 rubles. It is of good size, but not elaborate construction. We had on the table a fabulous spread prepared by Mrs. Uglov. We gorged and then heard her sing to her own accompaniment on the piano.

A pleasant find was Irene Vitaljerna, a 28-year-old blonde girl who speaks the best English we have heard. She graduated as an English teacher from the Institute of Foreign Languages. She now works for Dr. Uglov translating articles for his journal and writing his foreign correspondence. In the party were Dr. Lydia Ivanovna Krasnotschokova, one of Dr. Uglov's operative assistants, and Dr. Mursalova Pherusa Alexandrov, whom we saw assist Uglov in operation the next day.

At lunch there was much discussion of the proposed change in the work day in Russia. It was a six-day week, eight hours a day, except on Saturday, seven. Proposed is a five-day week, seven hours a day. Krushchev will use, in fact, already has, used this for socialistic propaganda purposes.

Fig. 4.—Erik Husfeldt, the author, Fedor Uglov, and Michael De Bakey, Wilfred Bigelow, and Dr. Baliga pose in the warm Sunday sunshine in front of Uglov's dacha.

We returned to Leningrad very full of food and with difficulty escaped our Intourist guides. Bill, Erik, and I had a talk far into the night regarding nations and the world of affairs, etc. Erik recommends the books by Fitzroy McLean "The Eastern Approaches," 1950, and "Return to Bokahra," 1959.

DATE: Monday, May 30, 1960

Awakened refreshed and had an omelette with raspberry jam and whipped sour cream. (It is an excellent idea to whip the sour cream, as it becomes light and seems to taste even better.)

The First Medical Institute of Leningrad (in honor of Piragov) is directed by Ivanov. The first clinical year chairman is Filatov, who has a broad physiological background. Facultative Surgery chairman is Kollenov; Topographic Anatomy and Operative Surgery chairman is Svaselli, and finally, of course, Hospital Surgery chairman is Uglov. There are also chairs in Gynecology and "Philosophy"! There are 3,000 medical students (500 times 6) in each of the four medical schools in Leningrad, which are (1) First Medical Institute (Uglov); (2) Second Medical Institute; (3) Military Institute (Kuprianov), and (4) Pediatric Institute (pediatric surgeons—Korhoff, Rosanov, Murgolin).

Dr. Uglov has two large operating rooms. The wards are painted white and blue. About 25 patients to a ward with moderate crowding, but very clean and neat. A tour of the laboratories showed us the biochemical, physiological, and other laboratories. The animal operating room was in the

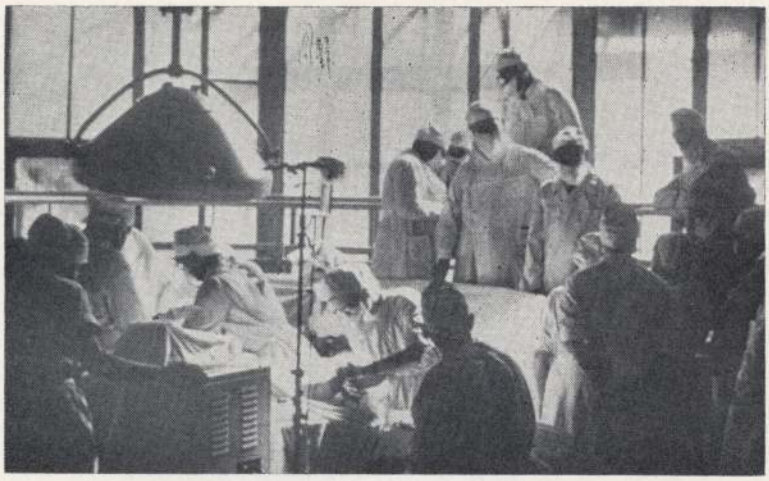

Fig. 5.—Uglov's operating theatre at the First Medical Institute of Leningrad.

cardiac catheterization room, with a neighboring room to keep the animals for 48 hours. Danish polarograph and pH meter, eight-channel polygraph with scope control, Van Slykes, pO_2's, and the Hellig (Freiburg) coagulagraph, were shown, all very good electronic equipment. The girls in the biochemical laboratory were having a very relaxed day with no apparent work to do. There was a bed, though, as if one technician sleeps in, and there were many potted plants and flowers.

We were shown also the pathological laboratory where a main interest was the study of urine for cancer cells, in particular, cancer of the lung. Uglov has been studying this for eight years. It appears that if you centrifuge urine and make five slides of the sediment, stained with Giemsa's stain, and if you do this 5 times (25 slides), then in 80% of patients with lung cancer (bronchogenic), a positive reading for cancer cells in the urine will be found. They use this diagnostically.

After surgery (pulmonary resection), the tests mostly became negative, but there is no prognostic value to the test. Patients can die of widespread metastasis, but if it is not growing in lung, then apparently the cells either do not get into the blood stream or tissue through the glomeruli; at least they are not seen in the urine.

Dr. Uglov did two cases: 1. Mitral stenosis in a 39-year-old woman without fibrillation. Anterior approach, fourth interspace, injected sympathetic chain with ¼% procaine (the Vishnevsky theory of neurogenic shock), clamp on auricle, cut off tip (big one), stay sutures, no carotid compression, glove off, finger in auricle, no instrument, rapid digitalization of the valve, auricle sutured, local anesthesia of intercostals, small chest tube, perichondral and pericostal suture. He showed us a fingernail knife for mitral commissurotomy which is quite similar to other fingernail knives available from such sources as Pilling, etc.

2. Pneumonectomy for a diagnosis of "lung abscess, chronic." No bacteriology was announced. Approach was anterolateral. Difficult dissection, multiple ligation of all the many venous and arterial branches. Then the stapling device to the bronchus. (Dr. Uglov was sitting down throughout the operation.)

The Vishnevsky theory of the nervous etiology of shock had a real test in this difficult operation. Multiple injections of the sympathetic chain, the lung root, etc., were done. But when Uglov really had trouble, his assistants started to pour blood into the patient, and, great surgeon he is, even though the heart rate was uncountable at over 200, he refused to panic, stayed calm, packed the wound, transfused, and when things got better, ligated the bleeding azygos vein. In our country, many surgeons would have preferred in this difficult case to have made the resection intrapericardially to have achieved a simpler approach to the problem. The lung resection in this case took 2½ hours.

At one stage of the operation, Dr. De Bakey remarked, "The women assistants of the Russian surgeons are better assistants than our residents. They do not try to take over the operation!"

When the tour of the laboratories was over, we retired to Dr. Uglov's office for a beautiful meal of caviar (red and black), salad, ham, cheese, pork, salmon, butter, bread, and pastries. Dr. Uglov gave a fine toast to the need for friendship and understanding between the U.S.S.R. and the U.S.A. Today, we also learned the extraordinary success story of this fine surgeon. He was born on a farm in Siberia, 600 miles from a railroad. By industry and achievement in school, he was awarded a fellowship in the regional school, then sent to Leningrad for his medical training, where he was first in his class. Honors and appointments followed. To have risen from the peasant class to Professor of Surgery would have been impossi-

ble under the Czars, but now he even owns a dacha.

Uglov gave us elaborate farewell presents, as if his bountiful hospitality had not already been enough. The evening express is a good train, but not as deluxe as the Red Arrow, and no sandwiches or supper of any kind were served, which is just as well, perhaps. I must have gained at least five pounds this week with all the dining and wining of our very generous hosts.

DATE: Tuesday, May 31, 1960 (clear and warm).

We arrived in Moscow on the dot, having been wakened just barely in time. Met at the train at 5:20 by Ninel, who whisked us in a Zim to the airport. Dmitri Venediktov there to see us off—Mackay and I to London, Bigelow later this morning to New York City via London. I sit at takeoff in the BEA Comet 4B, zooming upward in that incredible jet takeoff which always is an impressive experience. We will be 3 hours and 30 minutes to London at 30,000 feet.

The week has been so full of impressions and moving experiences, that it will take time to digest and interpret. One remembers over all the extraordinarily deep feeling, respect, and affection for us as individuals on the part of the Russian surgeons, and their sincere hospitality. It was, as Baliga said, a meeting of the "open-heart."

Some General Impressions

Perhaps the most striking impression which the visitor to Moscow and Leningrad obtains at the present time is the realization, which comes somewhat as a shock, that the Soviet Union appears not to practice a form of communism, but, rather, a very highly socialized form of capitalism. The economic structure includes banks, where it is possible to open savings accounts and receive interest up to 5%; indeed, such savings accounts are encouraged. One may make loans for the purpose of creating personally owned private property, and private property is beginning to become more and more abundant now in Russia as consumer goods are beginning to pour into the market, where the buying power far exceeds the goods available. More people are starting to own cars, have television sets, and, in the case of the wealthy, dachas (summer homes). If one has a dacha, it is possible to rent it during the winter to other, less fortunate, people, and to keep the rent you receive. Tipping (which is the symbol of one man's exploitation of another's labor) is not only permitted, but is, in fact, expected. This "subversive" growth of capitalism within the Soviet Union, it appears to me, is not at all due to the nefarious infiltration of foreign agitators, but, rather, to the progressive recognition on the part of the Soviet government that the most effective goad to productivity is the incentive of personal gain. In Russia there are the very rich and the very poor, and rewards are dispensed in accordance with ability and productivity, not in accordance with need. As mentioned earlier, it impresses one as being a rigorous and competitive society. The motivation of self-interest has been acceeded to, except that the regulations governing the individual's activity are more socialistic than ours, and the individual cannot inherit, but must earn his share of the wealth of the country.

Medicine, of course, is completely state-controlled and has had phenomenal growth. It is fruitless, really, to compare medicine in the Soviet with medicine in the United States. It is more profitable to compare medicine in the Soviet Union today with what it was 45 years ago in the last days of Czarist rule. At that time, it is recorded that medicine was available only to a small percentage of the large population of the country, and then only in the very largest cities. Some comparative figures relative to their progress in this regard might be of interest. There are at present over 360,000 physicians in the Soviet Union, physicians graduating from medical school at the rate of over 17,000 a year. Thus, there is one physician for every 575 Russian citizens. Seventy-five per cent of these graduates are women. For comparison in the United States, there are 250,000 physicians, 7,400 graduating last year, this number including 470 osteopaths. This gives a physician-per-capita ratio of 1:708. It would appear evident that the Soviet Union is graduating doctors at a rate which exceeds the increase in its population, a situation entirely different from that which prevails in the

United States, where great worry is held over the declining ratio of doctors to general populace and much talk and effort are being expended toward increasing the output of physicians.

What will the Soviet Union do with excess doctors? It seems likely—and this is only a guess—that it will follow the example of any country which produces a commodity in excess—namely, export it. The exportation of doctors might become a powerful tool in foreign relations. Perhaps they will be sent as medical missionaries of Sovietism to the neighboring countries, which are backward in health facilities. Whereas we send money to achieve influence in a country and often distribute it unsoundly and with bad grace, the Soviet Union may begin to export health, a commodity much desired and gratefully received. One can imagine the influence which this policy might have in cementing the Soviet sphere of influence in China and India and gradually molding the vast land mass of Asia towards political and ideological unity.

We saw very little of medicine as it is actually practiced in the Soviet Union because our visits were confined almost exclusively to watching a few of the very top-level surgeons in the country operate and to visiting the major teaching and research institutes in the two largest cities in the U.S.S.R. Thus, we had no opportunity to observe activities on the broad front of medical care. Medicine is run by a strange blend of bureaucracy and democracy—namely, by the joint activities of the Ministry of Health of the Government of the Soviet Union and of the Academy of Medical Science. The composition of the Academy and its purposes have been described above, and it is merely desired to reemphasize the fact that membership in this organization is by election. It is both honorable and financially profitable to become an academician, since election to this post carries with it a salary of about $4,000 a year in addition to whatever other income the member may be making. I gather that most academicians are of professorship level and that their incomes are in the $25,000- to $50,000-a-year category, not to mention fringe benefits such as state-supplied automobiles with drivers, summer homes, etc. Medical education is divorced completely from the universities, but instead is carried out in Institutes under the direction either of the Academy or the Ministry. The leading ones appear to be those under the direction of the Academy. A professor is a physician who has received a Doctor of Medical Science degree and who has been appointed to one of the chairs in a teaching institute.

A glance at the method of medical education currently in vogue might be of interest. Every child is first required to attend a ten-year secondary school, and enough schools are now available so that everyone may attend. The best students are eligible to apply for further training to enter either a profession or a skilled trade. The incentives to enter science and engineering exceed those which are offered in medicine, and the majority of those with the best minds graduating from secondary school appear still to enter these fields. Nonetheless, those electing to go to the Medical Institute, aged 16 or 17, are very top-quality students.

Their medical course is six years in length, the first year of which is primarily one of broad cultural indoctrination, the next four of which are extremely similar to medical courses in our own schools, and the last of which is essentially parallel to our internship. Compartmentalization of function is a basic characteristic of the system. Thus, a certain chair (professorship) which exists in a certain building in a hospital and has certain clinical facilities, is totally devoted to the teaching of a specific class. For example, at the First Moscow Institute, Zhorov holds the Chair of Clinical Surgery and is responsible entirely for the teaching of the third-year medical students, the third being the year in which they first impinge upon their training in surgery. The following year, the term

"Chair of Faculty Surgery" is used, and often there are two, as, for example, at the First Medical Institute, where Ialansky holds the Chair in Surgical Pathology and Kovanov the Chair in Topographical Anatomy and Operative Surgery. These men are in charge of the fourth-year training. Finally, there is the Chair of Hospital Surgery occupied in this institute by Petrovsky, who is in complete charge of the fifth-year training. In their sixth year, the students will, as mentioned, act as interns on the various services throughout the hospital. An Institute, thus, is a firm blending of medical school facilities and a hospital, and this, of course, gives it total strength as a unit for medical education. We recall the importance to medical education in our own country when this was first achieved about 60 years ago at Johns Hopkins University. This appears to be true throughout the country in every community large enough to support medical education, and all of the regional hospital centers are oriented around the teaching institute.

In the third year of medical school, the student studies the basic principles of surgery, wound healing, infection, trauma, surgical bacteriology, etc. In the fourth year, a systematic study of the classical type of surgical syndromes is made. Patients are first seen this year, and 70% of the teaching is bedside. There is no patient responsibility, but the student will scrub in the operating room two or three days a week on the days he is assigned to surgery. He is roughly eight months on the service, half-time. In the fifth year, he is assigned full-time to surgery for three months and this service approximates our clinical clerkship. More difficult and complicated cases are seen and differential diagnosis and treatment are stressed. The teaching is again largely at the bedside, but there is still no continuing responsibility for the care of patients. In the sixth year the student acts essentially as an intern and rotates through different services or clinics. As so many other countries, including our own, Russia is constantly experimenting with this year. In 1951, it consisted of a straight year in either surgery or medicine. In 1953 it was changed to a two-year program, one year in medicine and one in surgery and obstetrics and gynecology. Then in 1956 it became a rotating internship of one year's length; four months each being spent on medicine, surgery, and obstetrics and gynecology. Then last year it was converted again to the so-called straight internship.

Upon completion of this year, the student is given the title of vrach (physician). She (75% are women) is between 24 and 26 years of age, and she will be expected to serve three years at a post assigned her by the Ministry of Health. The best positions go to the top students, while the less fortunate find themselves in the hinterlands.

After three years, the top 15% or 20% may choose to return to the Institute for further training leading to specialization. Competition and examinations are held to settle this matter, and then the doctors can be allowed to specialize toward one of two goals—practical surgery or academic surgery.

Practical surgery requires two to three years in training at an institute as an ordinator under the service of one of the professors. The student will then be assigned to a post somewhere in the U.S.S.R. to practice surgery. Every three to five years the student will return for a three to six month's refresher course at the Postgraduate Institute in Moscow. Some few may stay as permanent ordinators (docent) at the larger Institutes.

In the field of academic surgery, the student is readmitted to the Institute as an Aspirant. He will study and receive practical training in surgery and will attempt to present an experimental thesis after three or four years and to defend it in examination. If successful, he will then receive his first degree, namely, that of Candidate, which is quite comparable to our Master of Science degree. As Candidate, he will work for three to eight years attempting to achieve the degree Doctor of Medical Science. This

requires a genuine contribution of original work and a stiff examination on his thesis. Rarely is this degree achieved by a Candidate under the age of 42 or 43. But when it has been obtained, the Doctor is eligible to be appointed a professor in one of the Institutes. Such appointment is for life, even though the professor may later stop teaching, or even move to a different post from the Institute. He usually will be assigned to regional or district chairs, since there are not many jobs available in Moscow and Leningrad. Some go to regional institutions and then come back to the capitol. If a Candidate is not successful in achieving his Doctor of Science, he may remain for a long time, perhaps for life, in the teaching institutes as Assistant to the Professor. In fact, on the shoulders of Docents, Assistants, and Candidates fall heavy loads in the treatment of patients.

One interesting technicality is that every Chair is deemed to be vacated automatically every five years. A professor theoretically must be reelected by a Committee of Professors of the Institute every five years. It is said, however, that the system is not effective in removing professors who have begun to coast because every living (that is, warm and walking) professor is always reelected by such committees.

Small wonder, then, that, having emerged as leaders, the surgeons we visited were ambitious, capable, energetic, and proud. They had to be to have achieved their positions in such a system.

Their hospital facilities are not modern, as the Government has diverted construction funds where the needs are greater, particularly toward building domiciliary units for the population as a whole. The old pavilion-type buildings with large wards were crowded, but neat and clean. The number of nurses visible in relation to the number of patients was impressive, and I suspect that their nursing service is considerably more adequate than ours. Certainly the nurses one saw assisting the surgeons in the operating room were extremely alert, competent, and agile. It appeared also that there was less use of some of the common adjuncts of postoperative care so common in our institutions, much less use of intravenous fluid solutions, less use of drugs, and particularly less use of antibiotics. It was stated that postoperative infection was not an excessive problem and in none of the institutes would anyone admit a significant problem with Staphylococcus.

In addition, the great emphasis on the neurogenic aspects of shock propounded by the senior Vishnevskiy (and extremely reminiscent of the writings of the senior Crile) has led to the extensive use of local anesthesia and considerably less use of blood during the operative procedure than is customary in our country. Indeed, local anesthesia is used in from 70% to 80% of all patients, and for many years before anesthesia was developed in the Soviet Union, it was used almost exclusively for the most major procedures. Much argument has been made concerning this practice and it is to be admitted, of course, that lack of the development of a trained corps of anesthetists was one of the primary holdbacks for many years. Even in the institutes, however, where such anesthesia is now available, extensive use of local anesthesia is continued. One-fourth of one per cent procaine with two drops of adrenalin per 100 cc. is administered in copious amounts and it appears that toxic effects from overdosage of procaine are rarely seen when the agent is used in this dilution. Dr. MacIntosh, distinguished Nestor of Anesthesia at Oxford, expressed the opinion that perhaps it is the absence of significant amounts of added adrenalin to the solution that may be a major factor contributing to its apparent safety in their hands. In any event, observing two patients two hours after subtotal gastrectomy, both of whom were completely alert, were not nauseated or otherwise feeling ill, did not have gastric tubes in place, and who were already drinking clear fluids, was impressive testimony to some of the benefits of local anesthesia. Both operations were performed in less than 1½ hours, and perhaps speed is one

aspect of the total technique. On the other hand, it was also interesting that these patients' surgeon did not intend to allow them to walk until the fourth day, although I suspect they could have walked home from the operating room.

It is possible that the use of local infiltration diminishes the blood loss during incision, as we saw several operations, both thoracic and abdominal, in which very few clamps and ties were placed during the exposure. This may help explain the lack of blood transfusion noted above. However, copious injection of the lung root and mediastinum did not protect the patient from the tachycardia and hypotension of significant bleeding from the azygous vein, and under these circumstances Uglov very wisely ordered vigorous, massive transfusion to control body physiology.

Some of the ancillary aspects of medical science which I thought of interest will be briefly commented upon.

Last year, the Soviet description of the use of an electronic computer as a diagnostic tool received much interest and it then appeared that the United States had also been evaluating this technique in the New York Hospital. It is comforting to know that both the Russian and American machines have slightly less diagnostic acumen than the L.M.D., and the fact that the machines cost several million dollars helps also to reassure those physicians who fear replacement by electronic devices.

In the application of atomic energy to medicine, the United States would appear to be considerably ahead. The Atomic Energy Commission is currently budgeting $46,000,000 for research in biology and medicine. Cobalt 60, one of the useful medical products of such research, is currently in widespread use in our country. I did not hear mention of the use of this agent in Moscow or Leningrad, nor do the Russians appear to use radioisotopes in research to any extent. Thus, they lack a very valuable tool.

In psychiatry it appears that they have a very practical approach which is said to be quite successful. First of all, the tremendous emphasis is on home care for patients, rather than institutionalization, except in extreme circumstances. The family is paid 400 rubles ($40.00) a month to take care of its disturbed member, which is very much less expensive to the state than institutional care. With a population 50% larger than ours, they have only 250,000 psychopathic beds, whereas we have over 770,000. But they do make use of "colonia," or "work villages," for the chronic and hopeless cases. The state of affairs in such a village is hard to visualize. One interesting thing they described was the Emergency Team in psychiatry. A group of psychiatrists and nurses in the big cities is on a continuous-call basis to rush to the scene of an acute psychiatric emergency, such as attempted suicide or other behavior of the acutely disturbed. It is said that such teams are often effective in bringing persons under therapy or observation and restraint much sooner than might otherwise be the case.

In the area of dissemination of information from foreign countries, the Soviets have an impressive program. As an integral function of their determination to equal and excel all other nations in scientific pursuit, they have established the Institute of Scientific Information of the Russian Academy of Science. It is said that this organization employs 2,300 full-time translators and abstractors and each year publishes and distributes over 400,000 abstracts of papers from 10,000 scientific journals from 80 countries. One of the Russian surgeons stated that most scientific work finds its way eventually into English and "since most Russian medical leaders read English, it is clear that English and Russian are now the two most important languages in the world." Though one might debate this conclusion, one cannot deny the effectiveness of the translation program in comparing it with the less intense effort in our own country. The National Institutes of Health spent approximately $375,000 in 1959 in its Russian translation program. In addi-

tion, there are a few small private translating agencies, but the total effect of this program does not really suffice to make Russian medical literature available to American biological scientists on a large scale.

Finally, a word might be said of the relative effectiveness of free enterprise research versus bureau-determined and project-designated research. This is very hard to evaluate, for one does not know the over-all total backing, in terms of either budget or personnel designated in our country and in the Soviet Union to medical research. One objective measurement of quality of research might be the fact that in the past 18 years eleven medical scientists from the United States have been awarded the Nobel Prize, whereas the last Russian to be so honored was Pavlov in 1904. Another criterion might be the state of development of now frontiers in medical knowledge, and, in this regard, it is my impression that the fund of knowledge added to medical science from research laboratories of the United States in the last ten years is considerably in excess of that which has been added from the laboratories of the Soviet Union. In the newer fields of surgery, for example, cardiovascular surgery, we appear to be considerably ahead by a factor of several years. On the other hand, they are currently encouraging their top research men by very pertinent and practical monetary awards. Some of these men receive salaries of $20,000 to $40,000 a year, plus fringe benefits. By and large, they usually have enviable positions in the teaching institutes and, relative to the practicing vrach, they are financially in an enviable position.

Eugene Fleming has recently observed that the opposite appears to be true in our country. "In the United States, a first-class medical researcher receives three or four times the pay of an average wage earner, but real income after taxes is only twice as much, and only about half as much as that of a fair-to-middling physician in a metropolitan area. In other words, instead of offering incentive to talented researchers, we penalize them, and we just might run out of dedicated men."

Our system of awarding research support, however, to researchers who present an interest in a subject and offer interesting ideas in the pursuit of additional knowledge, has been very productive, and, from the evidence we saw, we had no reason to believe that planned research in medical sciences was a more effective method of unearthing new knowledge.

It was my impression that a very large number of capable, intelligent, and ambitious younger men are currently sprinkled liberally through the teaching institutes in Moscow and Leningrad at the level of Applicant, Candidate, and Docent, and that a system of intercommunication between these men and our own young surgeons, both through the medium of the written word and the medium of an exchange of personnel between our two countries would be highly beneficial both as a means of accelerating progress in surgery in both countries and as a means of improving the understanding between their citizens. An Exchange Fellowship program should be urged in Congress to start as soon as possible. I, for one, would be delighted to participate in such a program by exchanging research fellows or residents for a year with any of the teaching Institutes which we visited. Both countries' fellows and institutes would learn much from the exchange. Baliga would be right, if it were truly a bilateral "open-heart."

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