SOVIET SURGERY.

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Individual Soviet surgeons of the calibre of Filatov, Judin, and Burdenko are known throughout the world. These men have by their own accomplishments placed themselves in the ranks of the great surgeons of all lands, past and present. A brief survey of some of their achievements may well serve as introduction to this review of Soviet surgery.

Filatov has perfected the technique for the transference of corneal grafts from the dead to the living. This operation is now indicated in all cases where blindness is due to corneal opacity. From the purely technical aspect it is a great achievement, and as yet Filatov has only been able to train a limited number of men to extend the scope of his work. His success is, however, not simply a question of operative technique. It is based on a wide range of experimental work in tissue culture, the preservation of living tissues outside the body, and in tissue immunity and response to foreign cellular elements. Moreover, the practical successes obtained have stimulated further research and opened up wider possibilities for the future of surgical transference of tissues and organs from one human being to another.

Judin, working at the Central Emergency Hospital, Moscow, is best known for his part in the development of blood transfusion from the cadaver. Working with a team of hæmatologists and other experts, Judin elaborated the technique for drawing off large amounts of blood from the corpses of those recently dead from accidents not involving surface trauma. In association with this work they introduced the modern methods of storing blood and worked out formulæ for the optimum solutions for preservation of this stored blood. Only in the last five years has the use of stored blood been extended throughout the world on the basis of additional experience in the Spanish war.

Judin is perhaps equally well known for his advocacy of radical surgery in perforated and bleeding peptic ulcers. On the basis of an exceptionally wide experience he advises gastric resection in 75 to 85 per cent. of perforations operated upon, claiming a mortality that varies from 4 to 8 per cent. More in line with the general trend of surgical opinion elsewhere, Judin also advocates a radical approach to the problem of severe hæmorrhage from chronic peptic ulceration. Closely associated with this is the realisation that such severely exsanguinated patients require massive transfusions. This has been accepted by Judin and his associates since 1936, transfusions being continued where necessary up to 6 litres or more. Where cadaver blood is available the giving of such large transfusions is in some ways simplified by the elimination of multiple donorship.

Judin has not confined his gastric surgery to the acute cases. He has done extensive reconstructive work on patients with strictures of the œsophagus.

In association with Berezov, Gertzen, Levit, and Petrov he has elaborated the technique of œsophago-gastrostomy after complete excision of the cardia for malignant disease. The surgery of the lower œsophagus has been facilitated in their hands by the introduction of a two-stage partial gastrectomy. At the first stage the stomach and lower œsophagus are freed along the greater and lesser curvatures and adhesions separated. Eight to ten days later the operation is completed. This is of particular value where the patient is emaciated or feeble. The vascular supply of the stomach is so free that this procedure does not result in local ischæmia.

Burdenko, who is now head of the medical services of the Red Army, has combined a surgical and political career and been able to do justice to both. He has been for many years a member of the Supreme Soviet, President of the Medical Council of the People's Commissariat for Public Health, and Chairman of the All-Union Association of Surgeons. During this time he has been responsible for the establishment of a first-class school of neuro-surgery. His writings and practical work extend over a wide range of surgical subjects.

Men such as this cannot be judged solely in terms of their individual achievements. Their work has been dependent upon the organisations of which they have formed part. These institutions have reciprocally benefited from their example and co-operation.

Filatov's experimental and surgical work has been done under the auspices of the Institute of Experimental Biology of the Academy of Sciences of the U.S.S.R. It has been part of a widely planned attack upon the whole problem of tissue grafting. The link between experimental biology and clinical surgery has been close. The work has not been confined to a single institution. Many workers in hospitals, schools, clinics, laboratories, etc., have contributed their quota to the solution of these problems. Recently Lapchinski has confirmed and extended the work of American biologists by the successful transplantation of the whole hind limb from one rat to its litter-mate. The grafted limb has survived and grown over a period of months. While this attainment still leaves unsolved many of the problems which remain before such a feat can be repeated in man, it has sounded the death-knell of the expressions of surgical defeatism which maintained that this was impossible—that such whole-organ homoplastic transplants could never survive in the mammalia except as a form of temporary scaffolding for subsequent replacement by the growth of tissues from the host.

Judin's work at the Central Emergency Hospital is even more dependent upon the organisation of which he has been a part. Neither the evolution of the cadaver-blood technique nor the early treatment of perforated peptic ulcers would have been possible without the Moscow Ambulance Service. This comprised in 1940 six sub-stations linked by direct telephone to the central station at the hospital. Incoming calls are relayed directly to a member of the medical staff on special duty. Different coloured lights indicate the source and probable degree of urgency of the call. Ambulances are sent out from the nearest sub-stations. These are accompanied by a doctor and two trained nurses. In urgent cases the ambulance must leave within two minutes of notification. Sixty per cent. leave within one minute. At least 350 calls are dealt with every day. When the patient has been seen, the ambulance doctor is able to telephone back to the hospital giving particulars of the case and the treatment likely to be required. In this way everything can be got ready to reduce delay in urgent cases to the absolute minimum.

This institute has in the five years from 1935 to 1939 treated 10,000 wounds, 800 fractures of the dorsal spine, 8,050 fractures of the limbs, 2,000 cases of appendicitis, 500 cases of extra-uterine pregnancy. This tremendous amount of work was dealt with by a staff none of whom had been qualified less than ten years. Valuable clinical and statistical studies have been completed. Excellent post-graduate teaching has been carried out continuously. Moscow has led the world in its planning of the treatment of surgical emergencies.

Burdenko's influence is to be seen in the high standard of treatment attained in the special army medical units. So far we have most information with regard to the treatment of chest wounds during the Finnish campaign. A general survey of the work on the whole front was presented by Achutin at a general conference of evacuation hospitals. Comparison with the results obtained during other wars was based on Burdenko's earlier surveys. The best recent work was done by the special unit under Professor Linberg. The excellence of his results are attributed to the fact that a large proportion of the wounded were transported by air.

An interesting feature of the reports of casualty work during this campaign is the publication of analyses of the various mistakes made in the earlier stages of treatment which have resulted eventually in poor end results. Ilchenko and Louise describe a series of fifty-nine cases, including twenty-one fractured femurs, where the end result was jeopardised by inadequate immobilisation during evacuation. The attitude adopted in this official criticism should act as a stimulus to more accurate attention to detail on subsequent occasions.

A further important field in which peace-time work has been extensively applied under war conditions has been that of local anaesthesia. The most significant work was done by Vishnevsky, who is responsible for the new technique of "creeping infiltration." He injects large quantities of dilute anaesthetic into the spaces between the various fascial planes, thus bathing all the tissues in the anaesthetic drug. This has been worked out in detail for most local regions and large series of major operations have been carried out without undue difficulty.

It is claimed that shock is minimal. This same technique has been given a full trial under war conditions with complete success. It was shown that all types of war wounds could be dealt with effectively and speedily under this type of anæsthesia. Earlier evacuation was possible than when any form of general anæsthesia was used.

Vishnevsky himself has gone further. He maintains that novocaine injections can be used with safety in the presence of infection of all kinds, including cellulitis. He uses novocaine injections to surround inflamed areas and claims that in many cases the inflammatory process is thereby aborted. This is based on the theory that the nervous system plays a constant part in the maintenance of an inflammatory process. The injection of novocaine insulates the affected part from its central connections and reduces this nervous influence. This theory is part of the teaching of the Neurotropic School of Soviet Medicine led by Speransky and Orbeli. Their views are extremely unorthodox, but are based on a wide range of experimental evidence and deserve careful study. Speransky's preliminary formulation of a "New Basis for the Theory of Medicine" is available in English.

Study of the recent Russian literature reveals one interesting fact. Many conclusions are put forward as original observations which appear to be simply facts that are well known here or are just becoming popularised. It seems likely that owing to previous lack of contact with foreign and especially with British medical literature many of these things have been worked out independently by Soviet surgeons. The accounts of the work of Soviet surgeons suggest a general acceptance of a large proportion of the recent developments which have taken place elsewhere. That which is fresh is outstandingly so.

It is hoped that the barriers which have existed between British and Soviet surgery in the past will now be finally broken down. With increasing exchange of information between the professions of the two countries, surgery in both will undoubtedly benefit.