

The gift of blood and some international aspects of blood transfusion

THE RÔLE OF THE RED CROSS

Mention of blood transfusion is to be found from the very beginning of medicine. In fact, tradition has it that Aesculapius used venous blood for therapeutic ends. Pythagoras, and later Ovid, tell of the miraculous results obtained from the practice of transfusion. There is the widely known primitive custom, still practised in Europe less than five centuries ago, which consisted of drinking the blood of one's adversary in order to acquire his virtues.

Considered thus throughout the ages as the basis of vitality and health, blood and its transfusion were the object of research which we know more precisely from the XVIth century onwards produced very inconclusive results. It was not until 1900 that Landsteiner made the discovery, already foreseen thirty years before by Landois and Muller, of the incompatibility of certain types of blood and the existence of blood groups, thus explaining at the same time the alternation of the ancient writers between success and failure.

A decisive stage had therefore been reached. In a few decades the considerable progress of transfusional therapy in the treatment of certain illnesses and accidental traumatism made transfusion an essential part of modern medicine. Moreover, the possibilities offered by transfusion opened up a new development of medicine itself and surgery, making possible open-heart operations, the use of artificial kidneys and exsanguino-transfusion, permitting the treatment of the seriously wounded and badly burnt who had hitherto been despaired of.

Thus, by meeting the demands which are made of it, transfusion brings about fresh needs and the demand for blood grows unceasingly. Let us take one example: in Switzerland, according to Dr. A. Hässig, Director of the Central Blood Transfusion Laboratory of the Swiss Red Cross, the utilization of whole blood has increased tenfold over ten years and this progression shows no signs of diminishing.

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This growing extension of the use of blood leads to the following considerations:

In peace time transfusion poses a number of complex problems for every nation. However, taking into account the possibilities, the necessities and local conditions, these problems are shown to be more or less basically identical from one country to another.

But it should be stressed that a number of countries have not managed to meet their own blood needs (whole blood, plasma and blood fractions) in a completely satisfactory manner. For those less fortunate in this respect, external aid would be not unimportant while waiting till they are in a position to meet their current needs, besides which, for most of them, a widespread national catastrophe resulting in a sudden and considerable influx of wounded would inevitably entail an appeal for blood from abroad¹.

Finally, the problem would become practically insoluble for all nations in the event of a conflict in which thermo-nuclear weapons were used. The horrifying number of burnt and wounded would cause such a demand for blood that it would probably be difficult for a nation under the circumstances obtaining to meet its own needs.²

It is in this threefold sense that blood transfusion takes on an international character.

¹ The rôle of blood transfusion centres in the event of a national or international disaster—appeal, warning, information and press, collection and despatch of blood, national and international co-ordination—was recently dealt with in the *Revue "Transfusion"* (Vol. IV, No. 1, 1960) by Dr. J. P. Soulier, Director of the National Blood Transfusion Centre in Paris.

² This particular question has been the subject of an article by Professor Paul Moureau, which appeared in *Les Annales du Droit International Médical* (Monaco, December 1958) under the title "The Problem of Blood on the International Level".

SOLVING THE PROBLEM OF DONORS

Taken as a whole, blood transfusion is made up of a number of aspects which can be summed up, in a general manner, as follows :

Scientific and clinical research with the aim of improving techniques and extending the use of blood and its derivatives as a therapeutic agent ;

The installation of reserves and transfusion centres, necessitating highly qualified personnel and adequate premises and material ;

The collection of blood which should be sufficient to meet all needs ;

In fact, the collection of blood or more precisely the blood DONOR himself, is the fundamental question and remains the essential problem of transfusion throughout the world.

To date no substitute has been found for blood and only human blood can be used for the human species, which amounts to the fact that the truly enormous quantities of blood, which are called for everywhere, can only be taken from man, necessitating a considerable and evergrowing number of donors. Thus, side by side with purely scientific questions of transfusion, a problem arises which, because it concerns everybody and because it is expressed through the relations which are established between the blood transfusion service and the donor, can truly be called social.

This problem—which has two aspects :

(a) the ways and means of recruiting donors ; (b) the criterion of qualifications for donors and the protection of health—is on three levels : the hospital, the locality and the country.

With regard to the hospital, the problem already existed at the time when collection was still on an individual basis. Blood requirements were then assured by donors coming to the hospital for what were called direct transfusions. The advantages and disadvantages of this method are too well known to be gone into here. It should be remembered, however, that the major objection to direct transfusion is the difficulty of finding immediately donors of a given group in the number required and wherever the transfusion is taking place.

This system has been generally abandoned in favour of the blood bank, which is of course founded on the principle of reciprocity. The patient is required to supply through the intermediary of his family or his friends a quantity of blood at least equal to that which he has received or will receive. It is acknowledged, however, that such a system very easily shows a debit balance. Moreover, it is not suited to meet all the requirements for blood.

This is why the blood bank is slowly being considered less as an isolated unit and more as a link in the series of banks serving the sick of a whole region and above that, of a whole nation. From this stems the birth of the public transfusion services, which group together all the resources of the community, allowing shortage and abundance of blood of different groups to be balanced and thus meeting the needs in quantity and quality over the whole area.

These public transfusion services, given their activities, can recruit all the personnel they need and possess all the appropriate installations. On the other hand, it is difficult for them to find a large number of blood donors among the public without making a direct appeal for solidarity towards the sick person. One knows that there are countless spectacular self-sacrifices when blood is required for a particular "case". Enthusiasm falls when it is a question of giving blood for reserves which are for the use of an unnamed community.

How can these public transfusion services recruit the very high number of donors which they need? Two fundamental methods exist: recourse to paid donors, on the one hand, and to voluntary donors, on the other.

PAID DONORS — COMPULSORY DONORS

1. **The paid donor.** — It is by no means impossible to find a sufficient number of paid donors, as the experience of certain countries has proved. This system offers certain advantages. Being paid, the donor abides by his summons, the correct time-table and instructions. Furthermore, under these conditions, blood donating, while not constituting a profession, remains a welcome financial contribution to a number of people.

But the disadvantages would seem to outweigh the advantages. Payment of the donor leads to excesses, attempts at records and exaggerated performances. Remuneration varies according to the cost of living in each country, but one could say that in principle it should correspond to the value of at least two days' work to attract the public. This results in a considerable increase in the cost price of blood, the burden of which will fall on the transfusion services on the one hand and on the patient receiving the transfusion, on the other, for whom the blood, which is of vital importance, should really be given free. In fact, remuneration of the donor poses a moral problem : it debases the generous act of the donation which, it would seem, should remain an act of pure charity ; it takes away from the donor himself and from the whole body which blood donors constitute among themselves, the character of generosity which one expects from them. Finally, it deprives the community of the considerable recruitment of a number of people who would be ready to give their blood from purely altruistic motives, but who are kept from so doing through fear of attracting attention by refusing a payment or of being confused with those donors who are not only moved by the feeling of solidarity.

2. **The compulsory donor.** — It is perfectly possible in certain cases to envisage the compulsory donation of blood ; but the essential condition is that the donors should be bound by a complete discipline. These conditions are rarely found together other than in military service, where it is possible to make the donation compulsory while maintaining the humanitarian principle which dominates it.

THE VOLUNTARY DONOR

The voluntary donor is the basis of all the blood transfusion services, just as he is an indispensable complement to the system of blood banks.

During the Second World War, when the system of paid donors and the blood bank were not meeting the growing need for blood, the system of voluntary donors gave complete satisfaction. In the years following, the State transfusion services and those of the Red Cross have succeeded, in the majority of countries, in main-

taining the principle of voluntary donations, in developing them and in relegating the paid donation to the background. As Dr. A. Hässig points out, this is an achievement whose true worth is not often accorded the credit it deserves, given the circumstances in which it was brought about : an evergrowing demand and the continually increasing anonymity of the donors.

One recognizes that blood, as a therapeutic product of human origin, should remain free from all commercial profit. It should form the object of an act of altruism and its gift should be free. One cannot stress too highly the personal character of blood donating and the essentially individual act which it constitutes. In these conditions, preserved blood and its derivatives should only be charged at the correct price, although it should be mentioned that the blood transfusion organizations in several countries pay for these costs, either partially or completely, in order to leave blood its character of complete gratuitousness.

However, as we have pointed out above, it is difficult to obtain a response for voluntary donors when it is a question of a public blood transfusion service, since the recruiting is not inspired by the direct knowledge of a " case ". For this reason, a truly civic education of the public is necessary to create in the anonymous donor a feeling of solidarity towards the unknown patient and to set a chain in motion ¹.

" The blood donor, when he is voluntary and anonymous, is carrying out one of the noblest, most disinterested and most efficacious gestures which it is possible to conceive ; the only motive which moves him is the ideal and it is the appeal to this ideal which constitutes the basis of publicity " ².

Recruitment of donors thus necessitates publicity destined to make the population conscious of its duties in the face of the im-

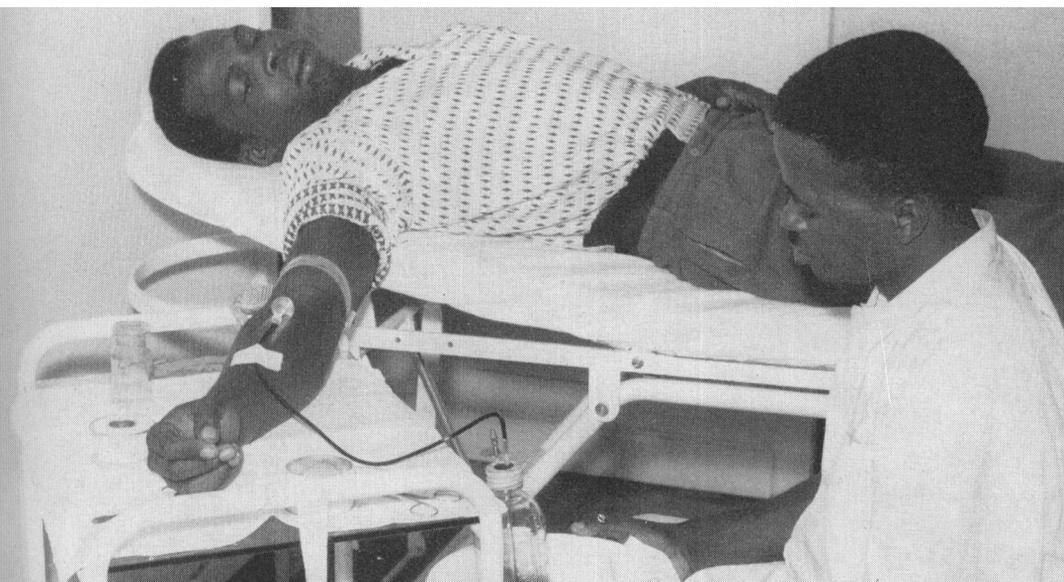
¹ It should be mentioned in this respect that in 1960 a test on the " motivation " of the blood donor was undertaken by Dr. George Miller, National Director of the Blood Transfusion Service of the Canadian Red Cross. These are the results taken from a thousand replies from donors coming from different social levels of the population : 72 % indicate as a motive the desire to help an unknown person ; 56 % became donors thanks to personal contacts ; 98 % feel better after giving blood and 99 % intend to continue being donors.

² Dr. Louis Revol, director of the Lyons Transfusion Centre (Extract from *Notre Sang*, quarterly review of the National Blood Service of the Belgian Red Cross, No. 25, 1961).



Collective blood donation at the headquarters of the Yugoslav Red Cross.

The Congolese Red Cross recruits blood donors.





Transfusion of blood collected at a Chilean Red Cross centre.

Blood is collected and despatched to all parts of the country by the Canadian Red Cross.



portance of blood transfusion, to fight against unjustified fears and too widely held prejudices and to promote the ideal of blood donating. This educational action should take into account the psychology of each community group and correspond to the possibilities which exist for collecting and handling the blood thus received. The radio, cinema, television, press, posters and tracts, conferences, exhibitions, "blood days", official displays, are so many means which, carefully brought into operation and wisely used, will contribute to recruitment. But the fact remains that the donors themselves, by their direct evidence and their example at home and at work will without doubt constitute the most effective and continuous means of bringing in new "recruits".

It should be pointed out here the rôle which can be played by voluntary organizations such as the Red Cross and other humanitarian and cultural institutions, donors' associations, sports clubs and automobile clubs, etc. This rôle requires previous understanding and close co-operation with the transfusion services responsible in order to avoid weakening the efforts undertaken, and duplication, always a regrettable waste of effort and moral influence.

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In the relations which, as we have said, are established between the donors and the transfusion service the latter has obligations to fulfil on its side. Apart from the normal protection of donors (medical examinations, insurance etc.) it must give them an account of the work of the service and the costs of the production of blood and its derivatives.

Thus transfusion is seen as a public utility service which calls on the help of the life forces of the nation: the civil and military health services, the university, the professional organizations, medical and para-medical and the voluntary organizations such as the Red Cross and the donors' associations. It is this mobilization which, in the final analysis, will be able to draw the public's attention to the extension of the use of blood and the difficulty of procuring it, and spotlight the service which every individual should render to society.

TOWARDS INTERNATIONAL TECHNICAL CO-OPERATION

If the problem of donors has claimed a good deal of our attention it is because, as we have seen, it constitutes the essential problem of blood transfusion. But finding donors does not solve the problem entirely. There remains the question of scientific and clinical research and, furthermore, the installation of transfusion centres and the formation of qualified personnel. And here, moreover, the problem is an international one because, where blood transfusion is concerned, international co-operation is more than an exchange of blood between countries at the time of a grave disaster. In fact, the exchange of blood can be seen as an urgent measure or even a last resort. Clearly, the ideal arrangement is for each country to be self-sufficient for its own needs. This intention reveals that comprehensive international co-operation consists in helping little favoured countries to develop their transfusion services.

Three of the principal international organizations are endeavouring to respond to the different needs of this technical co-operation :

The World Health Organization (WHO), a specialized agency of the United Nations is, as everyone knows, an organ of technical assistance to governments ; one of its sections is concerned with biological standardization, the formation of qualified personnel and the problems inherent in the installation of transfusion centres.

The International Society of Blood Transfusion (IBTS), which groups together scientists and experts from all countries on the research level with a view to ameliorating techniques and extending the use of blood.

The League of Red Cross Societies (LRCS), the international federation of all the Red Cross, Red Crescent and Red Lion and Sun Societies, whose job is to ensure and to develop the co-operation of these societies on an international level¹.

¹ Mention should also be made of the International Organization for Standardization (ISO) one of whose numerous technical committees studies the standards of transfusion equipment. Finally, it should be remembered that the member States of the Council of Europe have established an agreement aiming at the international exchange of therapeutic substances of human origin.

In the matter of blood transfusion, the rôle of the Red Cross and consequently the League, seems to be less clearly defined than that of the other organizations, which is why we will now endeavour to state it precisely.

THE RED CROSS AND BLOOD TRANSFUSION

The institutions of the Red Cross had already realized the importance of transfusion at a time when this was still in its embryonic state. The first transfusion service was set up in London in 1921 by the British Red Cross, followed some months later by the Australian Red Cross and the Netherlands Red Cross.

As far back as 1936, the Board of Governors of the League pointed out that the development of blood transfusion services gave the Red Cross an opportunity to render new services to the population, which were of great importance and it recommended the League Secretariat to put all the necessary information at the disposal of the National Societies.

In 1948, after a period which had led to the setting up of already numerous transfusion services, the XVIIth International Red Cross Conference, meeting in Stockholm, adopted a resolution recommending :

- “ that National Societies take an active part in the matter of blood transfusion and co-operate with their respective governments in the establishment of blood transfusion centres or, if necessary, themselves organize such centres ;
- that so far as possible the principle of free blood given and received be universally applied ;
- that the standardization of supplies, equipment and methods of transfusion be studied.”

This resolution shows the multiple aspects of the task of the Red Cross.

Now to meet this, it is impossible to establish a Red Cross programme of blood transfusion for universal use. It is easily understood that the Red Cross transfusion services which exist at present, offer differing aspects, as each one of them has been organized to meet conditions peculiar to the area which it serves.

Moreover, the rules relating to blood transfusion, if they exist, differ from one country to another. Therefore, the programme has to be adapted to the needs and possibilities of the country and the National Red Cross and, in each case, the extent and the nature of the co-operation between the Red Cross and the government authorities have to be precisely determined.

However, the fundamental organization of a transfusion service is, by and large, everywhere the same. A complete service comprises three principal elements : a register of regular donors, a blood bank system or regional collection centres and one or more centres for the production of dried plasma and blood fractions. It is within this general plan that the rôle of the Red Cross varies from one country to another. However, in a general manner this rôle is exercised in three principal directions :

1. To publicize and possibly to recruit donors for the national service (an activity of the most elementary nature) ;

2. To recruit donors, train auxiliary personnel and technicians, receive blood, preserve it, distribute it to hospitals, carry out scientific research or

3. Over and above the aforementioned activities, to determine the blood groups and Rhesus factor of the population, effect serological tests, prepare plasma and blood derivatives and form stocks in case of disaster or conflicts (the most comprehensive type of activity).

From this type of activity, we would like to give an example of the blood transfusion service perfected by a National Society responsible for the whole of the national transfusion service. This transfusion service is in the form of an undertaking independent of the government, and its functioning, under Red Cross responsibility, is ensured jointly by the provincial authorities who supply the premises, the Red Cross, which supplies the personnel and the equipment, the citizens, who give their blood free, and the medical research laboratories of a university (to which the Red Cross is bound by contract) which prepare the blood plasma. Whole blood and dried plasma are supplied free to the hospitals which, on their side, undertake to supply blood plasma, also free.

INTERNATIONAL ASPECTS OF BLOOD TRANSFUSION

This Society also has agreements with the armed forces for the transport of blood in case of urgency. Eight other National Societies have similar programmes. Bilateral agreements on the exchange of blood exist between some of them.

One can say that 65 of the 85 National Red Cross, Red Crescent and Red Lion and Sun Societies take an active part in blood transfusion.¹ With regard to this, here are a few features taken at random from Red Cross publications :

The American Red Cross, in 1959-1960, collected 2,422,000 bottles of blood, distributed 995,900 units of gamma globulin free, and used 60,000 volunteers (doctors, nurses and aids) per month. It has just collected its thirtieth million flask of blood since the end of the Second World War.

From 1947 to 1958, the Canadian Red Cross supplied blood and its derivatives free to 1,250,000 people.

In 1960, the Finnish Red Cross numbered 60,000 permanent donors and collected 102,405 bottles of blood.

In 1960, the Swiss Red Cross had 148,090 registered donors and collected 160,320 bottles of blood.

In 1957, the Alliance of Red Cross and Red Crescent Societies of the USSR had 500,000 regular donors.

The Austrian Red Cross succeeded in recruiting 9.6 % of the population in the province of Linz alone, as voluntary donors.

THE RÔLE OF THE LEAGUE OF RED CROSS SOCIETIES

In 1957, the XIXth International Red Cross Conference, meeting in New Delhi, requested " the Secretariat of the League to continue to encourage and to assist the National Societies in their blood transfusion and blood donor recruitment programmes, by making available information based on the experiences of sister Societies, and by encouraging mutual assistance and the exchange of technicians and scholarship holders between National Societies."

¹ *Plate.* (Photographs kindly lent by the League).

This Resolution, which perfectly defined the task and future work of the League,—and particularly of the Medico-Social Bureau—in the sphere of transfusion, is coming to fruition in a series of activities which we would now like to specify :

International co-operation. — As we have indicated above, close and intimate relations exist between the international organizations interested in transfusion problems. In 1956, the League organized an information meeting with the aim of promoting an exchange of views between these organizations. Delegates of the World Health Organization (WHO), the International Society of Blood Transfusion (IBTS), the International Organization for Standardization (ISO), the International Committee of the Red Cross (ICRC) and the League, examined the problems posed by the standardization and the interchangeability of equipment, biological standardization and the recruitment of blood donors. After taking note of the development of the work of their respective organizations in these different spheres, the delegates adopted a series of recommendations to determine in what measure it could be useful for one or other organization to take a given question in hand. As a result of this we are now awaiting the outcome of the work of the International Organization for Standardization concerning the standardization of equipment whilst the World Health Organization is making a detailed study of the question of biological standardization.

Technical advisers. — In order to have a better knowledge of local conditions and therefore to give more effective help to the National Societies, the League has secured the co-operation of specialist advisers on blood transfusion for the different regions of the globe.

Red Cross International Seminars. — These meetings, which are generally held during big international congresses on blood transfusion and which group together experts on blood transfusion and those responsible for this question in the National Societies, have as their aim the comparison and the pooling of problems, experience and techniques. In 1954, representatives of twelve National Societies gathered at a Red Cross meeting in Paris, to examine questions of equipment and to take note of the first experi-

ments concerning the use of plastic bags in place of bottles. In 1958, some 120 technicians and experts, including members of 21 National Societies, gathered in Rome, for the first Red Cross International Seminar on Blood Transfusion, the first part of which dealt with the methods of recruiting donors and with co-operation between the Red Cross and government services. The second part was devoted to the study of a basic technical problem, that of bacteriological contamination of preserved blood. A second Red Cross International Seminar on Blood Transfusion, in which 29 National Societies were represented, took place in Tokyo in September 1960 and was devoted to the particular problems of blood transfusion in Asian countries. A third seminar is scheduled for September 1962 and should take place in Mexico, at the same time as the First International Congress of Red Cross doctors.

Team of experts. — The League is examining at the moment, in collaboration with the World Health Organization and the International Society of Blood Transfusion, certain aspects of technical assistance in the field of blood transfusion towards newly developing countries. It is as a result of this that a draft manual laying down the minimum requirements for the organization and operation of a blood transfusion service was examined in May 1961 by a group of experts drawn from those three organizations with a view to its being put before an Ad Hoc Working Group of experts on blood transfusion meeting in Vienna in August of the same year. In order to increase technical assistance in the field of blood transfusion, the Ad Hoc Working Group recommended a system of sponsorship and collaboration between sister Societies in the development of blood transfusion programmes.

Sending specialists on the spot. — Specialists have been sent to National Societies at the request of these latter to help them to organize their blood transfusion services. In certain countries, experts sent by the World Health Organization have given the Red Cross the benefit of their experience.

Grants and study courses. — Grants are offered as far as is possible and under certain conditions to those responsible for the blood transfusion services of National Societies by certain sister Societies and by the League.

Advice and Information Centre. — The Medico-Social Bureau has collected, for the use of National Societies wishing to develop their transfusion activities, information and documentation emanating from the blood transfusion services of National Red Cross Societies as well as from national and international specialized agencies. Investigations have recently been undertaken on legislation regarding transfusion, on the financing of blood transfusion services, on the insurance policies protecting donors and on the diplomas, badges and rewards to donors.

Audio-visual material (posters, films, etc.) is put at the disposal of National Societies, together with a geographical map in colour showing the participation of the Red Cross in blood transfusion around the world. This material is intended for exhibitions and campaigns of recruitment of donors organized by the National Societies.

Publications and surveys. — Renewing a tradition which was current when the *International Health Bulletin* was published by the Medico-Social Bureau, the League has concluded an agreement with the International Society of Blood Transfusion to co-operate in the publication of its official bulletin *Vox Sanguinis*. This review serves as an international rostrum for the blood transfusion services of the National Societies. In addition, the Medico-Social Bureau has devoted several numbers of its *Medico-Social Documentation* series to transfusion, notably No. 16 entitled "Blood Donor Recruitment—ideas and suggestions".

Gifts of dried plasma. — For some years the Netherlands Red Cross, with the agreement of its Government, has placed important quantities of dried plasma at the League's disposal in order to relieve the urgent needs of National Societies, whilst awaiting the development of their blood transfusion services. The League has shared out this assortment of dried plasma between the National Societies of some thirty countries.

Gifts of equipment. — In exceptional cases, certain National Societies make gifts of equipment under the heading of assistance to other sister Societies who wish to extend their transfusion programmes.

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Rôle of the Junior Red Cross. — Although young people do not give blood themselves, they are in a position to give important help in contributing to the education of parents and families and their influence represents a force to be reckoned with in every educational programme.

It is therefore of the greatest importance for the very existence of the future programme to stimulate in children and in those who are concerned with youth an active interest in this programme and its execution. The Junior Red Cross, with 55 million members from 75 countries, the greater part of which are at school, is uniquely situated to break new ground and set an example when the opportunity of an educational programme for youth is presented. The possibility of an active service is therefore offered to these young people until they themselves can join as donors.

As far back as 1955 the League organized a joint meeting in Geneva of the Junior Red Cross Advisory Committee and members present from the Health Advisory Committee. This meeting recommended to the National Societies the analysis of the problems inherent in the participation of members of the Junior Red Cross in the blood transfusion programme and particularly recourse to help from schools for publicity within the framework of the teaching programmes with a view to encouraging the recruitment of donors.

CONCLUSION

Blood transfusion is seen as one of the major problems of modern medicine and it is a problem which should hold the attention of us all at a time when mankind throughout the entire world has a growing concern for better health.

But the job is too vast to be successfully carried through everywhere, which is why it is indispensable, by reason of the particular difficulties of each country, to have an effort of international co-operation to which a movement of solidarity without barrier such as the Red Cross can effectively contribute. Through its federal organ, the League, it helps and encourages the National Societies to back up government efforts through their pilot activities, the help of their volunteers or even by taking total or partial responsibility for the national transfusion service.

INTERNATIONAL ASPECTS OF BLOOD TRANSFUSION

Furthermore, and above all, every programme of transfusion requires, as a fundamental prerequisite, the active participation and support of the population ; an increasing number of donors is necessary. Experience has proved that such participation depends on how well the programme is understood by the public, hence the importance of developing educational methods amongst the latter and of creating and promoting a disinterested spirit of co-operation, free from all prejudice and fear. That is why the Red Cross, which has a very high moral influence with the public, is perhaps the ideal organization and the most logical, through which the recruitment of donors can be made all over the world.

It is precisely to underline this universal effort that the celebrations of the Red Cross Centenary, in 1963, will probably include a Donors' Day which will illustrate, in Geneva and the different countries, the fundamental ideal of the Red Cross service to one's neighbour being applied to the solution of an actual problem of particular urgency.

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