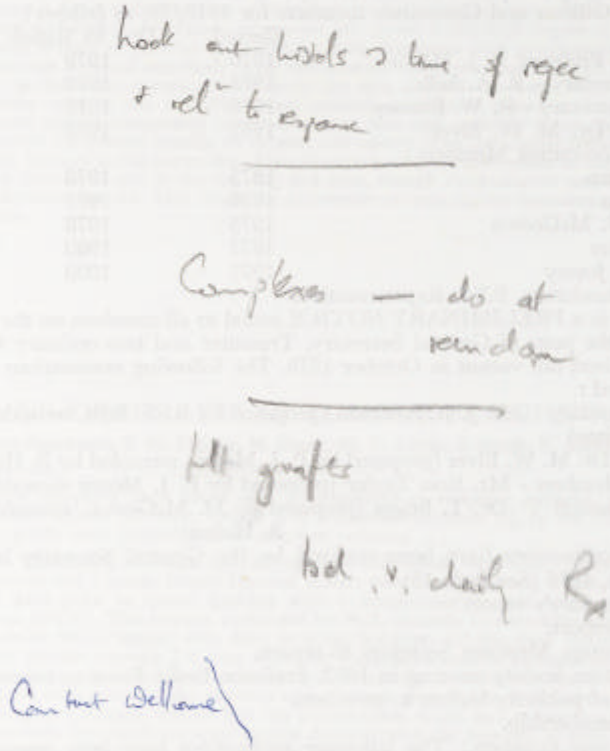

WOOD, PRINTER SOUTHWELL, NOTTS.

British Transplantation Society

1978 AUTUMN MEETING

TRINITY HALL CAMBRIDGE

Wednesday 18th October 1978

TIMETABLE

10.00 a.m.	Coffee
10.30	PAPERS 1 — 10 (Clinical Transplantation) Chairman : R. M. R. Taylor
1.00 p.m.	Buffet Lunch
2.00	Annual General Meeting
3.15	Occasional Review Lecture : B-cell Cross Matching — A. Ting
3.45	Tea
4.00	PAPERS 11 — 15 (Transplantation Biology) Chairman : J. W. Fabre

1. CELLULAR AND PLASMA CHANGES DURING REJECTION OF RAT CARDIAC ALLOGRAFTS AFTER PRETREATMENT WITH CYCLOPHOSPHAMIDE

P. S. Veitch, B. K. Shenton, R. M. R. Taylor

Newcastle.

The efficacy of donor pretreatment with cytotoxic or immunosuppressive agents in prolonging allograft survival is at present controversial. This experiment was designed to study graft survival and plasma and cellular changes as observed by Proud et al[1] in recipient animals using donors pretreated with cyclophosphamide.

The heterotopic cardiac allograft model in inbred adult male rats weighing 200-250 gm (donor : PVG/C-AgB $_s$; recipient : WAG-AgB $_s$) was used. The donor PVG/C rats received 60 mg. cyclophosphamide intraperitoneally 5 hours prior to retrieval of the heart. Changes in lymphocyte sentisation and plasma lymphocyte inhibitory activity of the recipient were monitored using the tanned erythrocyte electrophoretic mobility test (TEEM) [2]. Cessation of elctrical activity in the transplanted heart was taken as evidence of rejection.

Results

	Number	Mean Survival Time (days) ± 1 SD
Untreated control rats	(12)	7.25 (± 0.75)
Cyclophosphamide pretreated rats	(8)	7.75 (± 0.71)

Students t test : p = .154 (N.S.)

Detectable changes in lymphocyte sensitisation to donor heart tissue, and donor lymphocytes (both1- and 2- way reactions) occurred on day 3 in recipients in the untreated group, and on day 5 in the cyclomphosphamide pretreated group. No significant difference in the titre of plasma lymphocyte- inhibitory activity of the recipients was detected between the groups.

Conclusions

(1) A pretreatment regime that has proved effective in some rat strain combinations [3] has failed to prolong graft survival time in this combination.

(2) Cyclophosphamide pretreatment of the donor delayed appearance of detectable lymphocyte sensitisation in the recipient to donor antigens.

(1) G. Proud et al. Brit. J. Surg. 65, (1978)
(2) B. K. Shenton et al. J. Immun. Methods, 14, 123-139 (1977)
(3) R. D. Guttmann et al. Transpl. Proc. 7, No.1 117-121 (1975)

2. TECHNIQUE OF ORGAN REMOVAL AND FATE OF KIDNEY GRAFTS FROM LIVER DONORS

Keith Rolles, R. Y. Calne, P. McMaster

Cambridge.

The fate of forty-two kidney grafts taken from heart beating ventilated donors at the same time as removal of the livers for allografting is reported, and is compared with fifty kidney grafts taken from heart beating, ventilated donors whose ventilators were electively switched off either during or immediately prior to kidney removal.

The fate of thirty-two kidney grafts taken from donors classified as 'dead on arrival' at the admitting hospital is also reported.

Onset of life-supporting graft function was significantly earlier among kidneys from the 'liver donor' group. Consequently, immediate post-operative dialysis requirements were significantly less in recipients of this group of kidneys.

Early graft survival, the incidence of graft primary non-function, failure of first and second kidney grafts and recipient survival were not significantly different when comparing 'liver donor' and 'ventilator switch off' kidneys.

No constant relationship was apparent in any donor group between graft fate and the anoxic and ischaemic times the graft was exposed to during organ removal, and reimplantation.

References

1. Diagnosis of Brain Death. (1976) British Medical Journal, 2, 1187-1188.
2. Wall, W. J., Calne, R. Y., Herbertson, B.M. et al. (1977) Transplantation, 23, 210-216.
3. Ross, H., Marshall, V.C. and Escott, M.L. (1976) Transplantation, 21, 498-502.
4. Hart, A.J L., Smellie, W.A.B. and Calne, R.Y. (1971) Lancet, i, 103-150.

3. USE OF CHRONIC LYMPHOCYTIC LEUKAEMIA CELLS FOR MLC TYPING

Elizabeth H. Jones, A. B. Hockley and Sylvia D. Lawler
Institute of Cancer Research and Royal Marsden Hospital.

DW typing is often restricted by a limited supply of normal homozygous DW typing cells, so an additional source of typing cells is desirable.

Mixed lymphocyte cultures were performed using cells of known DRw type from 18 patients with CLL as stimulator cells and lymphocytes from 16 normal controls of known DW and DRw. type as responder cells. Decreased MLC reactivity where a common DRw antigen was shared with normal control cells was regarded as analogous to a "typing response" (CLL cells cannot be typed for DW since they do not respond in the MLC).

MLC experimental data were converted from counts per minute into scores by the double normalisation procedure (Ryder et al) and any score below 50 was taken to indicate a convincing typing responses and 6 of these were statistically significant ($p < 0.05$).

These results suggest that certain selected CLL cells may be used as typing cells for DW typing, and the abundant supply of these cells is an obvious advantage.

Ryder, L.P., Thompson, M., Platz, P., Svejgaard, A. (1975).
Histocompatibility Testing, Munksgaard, pp 557-562.

4. THE EFFECT OF PER-OPERATIVE BLOOD TRANSFUSION ON CADAVERIC RENAL TRANSPLANT SURVIVAL

A. de Bolla, A. D. Barnes, B. Noble,
Birmingham.

The effect of per-operative blood transfusion has been studied prospectively in 92 consecutive cadaveric renal allografts performed on 86 patients, 22 of these operations being second transplants and of 3 of them third transplants. Between 1 and 4 units of whole blood were given to trial patients at the time of operation, most receiving 2 units. Fifteen trial patients received blood from parous female donors only, 21 from non-transfused male blood donors only, 17 received blood from ordinary blood bank stock and 39 patients received no blood and acted as controls. Blood was given in the absence of heavy haemorrhages to trial patients providing there was no contraindication to this. No patients were excluded from the trial and the groups were comparable for sex, pregnancies, previous blood transfusions and transplants.

At three months no significant difference can be shown between the survival of the grafts in the 4 groups either before or after the exclusion of non-immunological failures. The survival figures were as follows:

	3 Month Survival Figures	
	Total	Minus non-immunological failures
Female blood	10 out of 15 = 67%	10 out of 11 = 91%
Male blood	12 out of 21 = 57%	12 out of 17 = 71%
Blood bank blood	12 out of 17 = 71%	12 out of 14 = 86%
No blood	25 out of 39 = 64%	25 out of 30 = 83%

These figures do not support the concept that per-operative blood transfusion improves the survival of grafts in the first three months but the slight trend towards better survival amongst those receiving female blood is being further investigated.

5. A CLINICAL TRIAL OF CYCLOSPORIN A IN PATIENTS WITH CADAVERIC RENAL ALLOGRAFTS: RESULTS AND BIOPSY FINDINGS

R. Y. Calne, D. J. G. White, S. Thiru, P. McMaster, D. B. Evans, and D. C. Dunn
Cambridge.

A pilot study of Cyclosporin A as the sole immuno-suppressive agent in patients with mismatched cadaveric renal allografts has been undertaken. To date seven patients have been treated. In all patients there has been transient disturbance of liver function and renal function has been slow to become established. Immunosuppressive activity has been demonstrated but mild to moderate rejection has been seen in biopsies of four allografts in patients treated initially with 25 mg/kg/day.

One patient developed vascular lesions which appeared to respond to the Cyclophosphamide derivative Cytimun (ASTA 5122). Four patients currently have good function in their transplants. Three have been discharged from hospital after three weeks without receiving Azathioprine or steroids at any stage. The further progress of this trial will be presented.

Six were biopsed because of poor renal function or a decline in function after satisfactory urinary excretion.

Three of these patients had very minimal and focal cellular infiltrates. Two had moderate cellular rejection. The sixth patient had very minimal and focal cellular rejection reaction but showed foci of fibrinoid vasculitis with haemorrhagic infarction of a glomerulus. Light microscopic, immunofluorescence and electron microscopic findings on these cases will be presented.

6. THE IMPORTANCE OF URINARY CYTOLOGY IN RENAL TRANSPLANTS

H. Bockorn W. Lauchart
Tübingen and Hannover.

The early diagnosis of rejection in renal transplants seems to be important for an effective treatment. Urinary cytology is one of the methods to detect threatened rejection. In the following sudy it was examined, 1. whether urinary cytology is a certain and early diagnostic criteria and 2. whether early treatment of rejection has influence on transplant survival.

In 51 transplanted patients 83 cases of rejection were verified by histology. Urinary cytology was in accordance with histology in 63% and was positive 5.2 days earlier than clinical signs. In 37% there was a misinterpretation due to rejection treatment, infection ect.. The clinical signs of rejection agreed with histology in 76% demonstrating a better diagnostic criteria. The year survival rate of renal transplants treated for rejection after early detection by urinary cytology is 66%. In case of clinical diagnosis the rate was only 35%.

This shows that the early detection of graft rejection by means of urinary cytology is of crutial importance for an increased survival rate of transplanted kidneys.

7. CIRCULATING IMMUNE COMPLEXES AND IMMUNOLOGICAL MONITORING OF RENAL TRANSPLANT PATIENTS

M. D. Smith & J. R. Salaman

Cardiff.

Twelve patients who received cadaver renal transplants were studied both pre and post transplantation for periods up to one year. The immunological parameters examined were the presence of circulating immune complexes (CIC) using the Raji cell assay and the radiolabelled C1q binding method, E and EAC rosettes, the response of peripheral blood lymphocytes to phytohaemagglutinin, and serum and urine immunoglobulin G, A and M. 7 of 12 patients have well functioning grafts, 1 has chronic rejection, 2 have had a transplant nephrectomy and 2 are deceased.

In no patients could a correlation be found between the immunological tests of lymphocyte function and rejection episodes. Furthermore levels of urine and serum immunoglobulins did rise significantly during rejection episodes as has been reported previously.

CIC were demonstrated in 7 of 12 patients by the Raji cell assay and 1 of 12 using the radiolabelled C1q method. Of these 7 patients, CIC were demonstrated in 5 just prior to rejection episodes, the pre-transplant sera being negative. In 1 patient the CIC demonstrated before transplantation were not detectable 6 weeks later and the graft is still functional. In the remaining patient CIC were present in both the pre and post transplant sera and this patient, now 4 months after transplantation, has chronic rejection.

These preliminary results suggest that tests of cellular function and serum or urine immunoglobulins are of little value in predicting rejection. The measurement of CIC using a sensitive reliable method may be more useful in monitoring the progress of renal transplant recipients.

8. THE SIGNIFICANCE OF VASCULAR CHANGES IN IN ALLOGRAFT REJECTION

M. Andrew, J. Burston, R. Naik, N. Lindsey, H. A. Lee and M. Slapak

Portsmouth.

This report concerns the histological findings on percutaneous biopsy of 40 renal allografts in 38 patients and the subsequent clinical significance.

A total of 106 biopsies were performed of which 98 were within the first 2 months post transplantation. No patient had fewer than 2 biopsies, the indication being suspected rejection or persisting non-function. Biopsies were examined by light and electron microscopy. Immunofluorescent staining was also performed to indentify IgG, IgM, IgA, fibrin and C_3. The following histopathological entities were catergorised: interstitial oedema, interstitial infiltration, interstitial haemorrhage, microvascular lesions including endothelial swelling and cellular proliferation, thrombosis and glomerular lesions.

Of 19 grafts showing either interstitial haemorrage, microvascular change or glomerular lesions 58% were removed within 2 months due to uncontrollable rejection or deterioration in function. At 9 months 89% of the grafts had been removed for the same reasons. In contrast, of the 22 kidneys in which only interstitial oedema, with or without cellular infiltration, was shown, only 9% were removed by 2 months. At 9 months the graft survival in this group was 52%.

Of 19 allograft recipients in whom microvascular change was demonstrated, 47% had shown only interstitial cellular infiltration on earlier biopsy. These findings indicate that cellular infiltration as a manifestation of graft rejection is frequently succesfully treated by standard immunosuppressive regimens. By contrast the presence of vascular lesions or interstitial haemorrhage indicate a form of rejection which in a large majority of patients is ultimately totally unresponsive to standard immunosuppressive treatment. Our findings indicate the important prognostic value of biopsy as well as the urgent need for more effective immunosuppressive therapy.

Reference:

Herbertson, B.M., Evans, D.B. et al. Percutaneous needle biopsies of renal allografts: The relationship between morphological changes present in biopsies and subsequent allograft function. Histopathology — 1977, I, 161, 178.

9. EFFECT OF RHYTHMS ON IMMUNOSUPPRESSION

M. S. Knapp, J. R. Cove-Smith, R. Pownall, R. P. Burden, R. W. Blamey

Nottingham.

Ratté and colleagues (1973) [1] observed that rats transplanted at certain times survived longer than those operated on at other times of day or night. They suggested that circadian rhythms in factors concerned with allograft insertion or rejection may influence the acceptance of grafts.

An analysis of renal allografting in man, related to time of graft insertion, is in progress (using data from our own unit, and from other U.K. units). The results of the analysis will be presented.

Cell-mediated immune responses in man, evaluated in healthy students using Heaf testing, show circadian variations with maximum responses after challenge at 0700h [2]. We have calculated that rejection in man most frequently first affects graft function in the early morning and has a circadian rhythm ($P < 0.01$).

In rats measurements of response have been made 12hourly for 48 hours after oxazolone challenges to oxazolone-sensitised animals, before and after the lighting regime has been reversed. The time of antigen encounter influenced the magnitude of this cell-mediated immune response. With standard light/dark regimes there is a circadian rhythm ($P < 0.001$) in response, with the minimum at the same time that was found to be the best time for renal transplantation in rats.[1] The maximum observed responses at 1000h. were eight times greater than the minimum responses seen at 1600 h. ($P < 0.001$).

Immune responses are rhythmic and more attention should be paid to the timing of operation, of treatment and of enhancing procedures such as transfusions.

1. Ratté, J., Halberg, F., Kühl, J.F. and Najarian, J.S. (1973). Surgery, 73, 102.
2. Cove-Smith, J.R., Kabler, P., Pownall, R. and Knapp, M.S. (1978). Brit. Med. J. iii, 253.

10. INVESTIGATION OF THE PATHOGENESIS OF POST-TRANSPLANT HYPERTENSION

M. McHugh, H. Tanborga, R. Wilkinson

Newcastle.

Exchangeable sodium (Na_E). plasma renin activity (PRA), plasma (P.Ald) and urinary aldosterone (U.Ald) were measured in 122 patients, 2-120 months post-transplant. Diuretics and anti-hypertensives were with drawn 14 days prior to the study.

Hypertension (mean arterial pressure (MAP) > 110mmHg) was found in 55 patients (45%). Patients with borderline hypertension (5), renal arterystenosis (6) and those in whom serum creatinine exceeded 200umol/1 (6/62 normotensive (NT) and11/52 hypertensive (HT) were excluded from comparisons between NT and HT groups.

Bilateral nephrectomy (BNx) had been performed in 20/56 NT and 2/38 HT patients ($p < 0.003$). Non-BNx HT patients had higher MAP on dialysis than non-BNx NT patients ($p < 0.05$). They also had a higher incidence of glomerulonephritis as a primary renal disease ($p < 0.05$).

Donor, retrieval and transplant characteristics did not affect subsequent blood pressure. Renal function and maintenance prednisone dosage did not differ between NT and HT groups, but HT patients had suffered more rejection episodes.

Na_E and U.Ald were higher in the HT than NT group ($p < 0.02$). PRA was also higher in the HT patients and the normal inverse relationship between PRA and Na_E was not found in the HT patients suggesting a failure of suppressibility of renin in this group. There were correlations between PRA and U.Ald ($r = 0.49$, $p < 0.005$) and U.Ald and MAP ($r = 0.46$, $p < 0.01$) in he HT group. Angiotension II blockade with Saralasin in 19 HT patients resulted in reduction in MAP proportional to PRA ($r = -0.83$, $p < 0.001$).

Renin may be responsible for the salt retention observed in the HT patients acting via the stimulation of aldosterone secretion and may be an important pathogenic factor in post-transplant hypertension.

11. ANTIBODY RESPONSES TO FULLY ALLOGENEIC ORTHOTOPIC LIVER TRANSPLANTATION IN THE RAT

H. ff. Davies, G. W. Butcher and Franz A. Zimmermann

Cambridge

Orthotopic liver transplantation has been carried out in two different combinations of fully allogeneic strains of rats, DA to PVG-H-1a to HO.B2. The former group contains very long term survivors (> 150 days), the latter has no survivor beyond 58 days. In the DA to PVG combination, kidney grafts are rejected without exception by day 12 [1]. Antibody responses to the liver graft, analysed by complement mediated cytotoxicity tests, using target lymphocytes from different strains to establish specificity, are strikingly different in the two combinations. PVG rats bearing DA livers produce high titres of antibodies specific for the B-region antigens (Ia homologues) [2] of H-1a (the DA MHC), but no antibodies specific for A region antigens (K/D homologues) [2] are ever detected. Strong antibody responses specific for the Pta (perpheral T-cells antigens, non-MHC) antigens [3] are also found. Anti-B region and anti-Pta antibodies persist at high titre for prolonged periods. Anti-A region antibodies can be eluted from the grafted liver tissue, and the serum of these PVG rats contains substancesinhibiting the cytolytic activity of anti-H-1a antisera for H-1a target lymphocytes. This inhibition is MHC specific, since little or no inhibition of an anti-H-[1] serum [(AO x PVG) anti LEW] in cytolysis of H-1 [1] targets is observed. Thus there is strong evidence that the serum of PVG rats bearing DA livers contains soluble H-1a antigen or immune complexes in antigen excess. In contrast, HO.B2 recipients of PVG-H-1a liver grafts produce a strong and persistent antibody response specific for A region antigens. Absorption studies show that anti-B antibodies, if present, are in low titre. These results are discussed in terms of (i) the different immune responsiveness H-1 [1] targets is observed. Thus there is srong or immune complexes in antigen excess. In of PVG and HO.B2 recipients to H-1Aa antigens; (ii) the possible role of antigen or immune complexes in antigen excess in protecting the liver graft and (iii) the antigenicity [4] as opposed to the immunogenicity of the liver graft.

1. Gallico G., Butcher G.W. and Howard J.C. Submitted to J. Exp. Med.
2. Butcher G.W. and Howard J.C. Nature 266, 362, 1977.
3. Howard J.C. and Scott D.W. Immunology 27, 903, 1974.
4. Hart D.N.J. and Fabre J.W. Transplantation (in press) 1978.

12. THE CAPACITY OF ALLO-ANTISERA RAISED WITH DIFFERENT IMMUNIZING TISSUES TO PASSIVELY ENHANCE REALLY ALLOGRAFTS

G. G. Gallico and W. Mason

Oxford.

Several studies have demonstrated the importance of antigens coded by genes in the I region of the MHC as targets for passive enhancement of mouse skin allografts and of rat heart and kidney allografts. These Ia antigens have a limited tissue distribution in the mouse: present on B cells, macrophages, epithelial cells, and spermatocytes. They are absent from kidney and erythocytes (RBC), and their presence on T cells and thymocytes is controversial. The presence of analogues antigens in the rat has been hypothesized but their tissue distribution is unknown.

Rat kidney allografts are readily enhanced by passive serum infusion. If Ia is the central enhancing specificity, then kidney enhancement can be used as a sensitive functional assay for the anti-Ia activiy of a serum. No in vitro assay has previously been shown to correlate with enhancing potency. By raising alloantisera against several Lewis rat tissues and testing the enhancing capability of those sera for Lewis kidneys in DA recipients, we mapped the distribution of Ia-like antigens as expressed by the original immunizing tissues of the rat.

DA anti-Lewis sera were raised against spleen cells, thoracic duct lymphocytes (TDL), B cells from 'B' rat TDL, thymocytes, skin grafts, T cells (surface Ig rosette depletion), RBC, irradiated kidney tissue, chimeric kidney tissue (Lewis donors with 99% DA periphal blood lymphocytes), and long-enhanced kidney tissue (Lewis kidneys enhanced in DA hosts < 60 days).

All the sera enhanced kidneys well except those against T cells and thymocytes, which enhanced 50%, and that against RBC, which did not enhance. Therefore, the tissue distribution of the enhancing antigen as measured by its immunogenicity is more widespread in the rat than would be expected by analogy with the mouse.

Each of the sera was titered for specific binding to Lewis B cells using a cellular radioimmunoassay. The titers of the sera correlated well with their enhancing potency as determined on a volume for volume basis in dose-response studies. In contrast to previous serologic assays, this assay of binding to B cells shows good promise of predictive capability for enhancing potency of a serum.

13. PASSIVE ENHANCEMENT AND THE PROBLEM OF HYPERACUTE REJECTION OF RENAL ALLOGRAFTS IN THE RAT

Winearls C. G., Fabre J. W., Hart D. N. J., Millard P. R., and P. J.Morris

Oxford

The clinical application of passive enhancement has been delayed by the problem of antibody-mediated damage to graft. At a previous meeting of this society we showed that F(ab')$_2$ prepared from enhancing serum was at least 100x less effective than whole antibody in the induction of enhancement but that it did not block the induction of enhancement by whole antibody although it did block complement-dependent lymphocytotoxicity in vitro.

We have now shown that hyperacute rejection which can be induced in the DA → Lewis combination by the administration of Lewis anti-DA serum and guinea-pig complement, can be blocked by the prior administration of Lewis anti-DA F(ab')$_2$ without blocking enhancement. Using the same model we have also shown that red cell absorption of Lewis anti-DA serum to produce an anti-Ia-like serum, removed its ability to induce hyperacute rejection without removing its ability to enhance.

Treatment	No. with hyperacute rejection	No. enhanced
Normal Serum plus GPC'	0/5	0/5
Lewis anti-DA pus GPC'	8/8	0/8
F(ab')$_2$ before Lewis anti-DA and GPC'	1/5	4/5
RBC absorbed Lewis anti-DA plus GPC'	0/5	4/5

14. QUANTITATIVE SEROLOGICAL ANALYSIS OF RABBIT ANTISERA TO HUMAN AND CANINE THYMOCYTES

Rosemarie Dalchau and John W. Fabre

Oxford

In experimental sytems, ALS has been an extremely useful and potent immunosuppressive agent, but its clinical use has been disappointing. There are many possible reasons for this. The particular potential problem we have examined in this paper is that the immunodominant specificities on human lymphocytes might not be the appropriate ones for immunosuppression. It has been reported previously to this society that of the order of 50% or more of the antibodies in rabbit anti rat ALS are directed at leucocyte specific determinants. This would appear to represent a favourable situation with respect to immunosuppression. We have examined rabbit anti dog and rabbit anti human thymocyte sera to see if this high degree of leucocyte specificity was also present in ALS to these species. Anti thymocyte sera prepared in 3 rabbits for each species were analysed separately using quantitative absorption analyses with quantitative binding assays in the assay system. In all cases, the sera showed the same high degree of leucocyte specificity seen in the rat. Absorption analysis with bone marrow and spleen cells of the leucocyte specific component revealed at least two and probably three distinct specificities. A substantial component specific to thymus and absent from peripheral lymphoid tissue was seen in man, but not in the rat or dog. Thus there are no gross differences in the leucocyte specificity of anti thymocyte sera in the rat, dog and man, though the leucocyte specific components could vary between species. This might be important as regards the immunosuppressive potency of the sera.

15. SPLEEN GRAFTS IN TUMOUR-BEARING RATS

H.Bitter-Suermann, T. M. Phillips, H. Bauer, M. C. Lewis, J. Smith, P. Sachithanandam

Georgetown.

Spleen allografts from donor rats, pre-sensitized to recipient antigens, elicit a lethal graft-versus-host disease (GVHD), despite host immunocompetence (1). In the following experiments, spleen grafts were primed against recipient tumours.

Two inbred strains of rats with strong Ag-B differences were used. Wistar-Lewis (W/L) were the donors and Chester Beatty Hooded (CBH) were the recipients, which had been inoculated 10-14 days prior to spleen grafting with a transplantable, metastasizing chemically-induced sarcoma (MCII). This tumour is rejected by W/L animals. Donors were pre-treated, repeatedly, with viable MCII tumour cells prior to transplantation. Of the total 108 recipients, 47 showed massive tumour necrosis 3-5 days following transplantation. In animals with metastatic disease at operation. necrosis of both primary and metastatic tumours was noted. Histologically, when compared with controls, the tumours under attack showed less invasiveness, marked loss of cell cohesion, rare mitoses, smaller and less pleomorphic nuclei and extensive areas of haemorrhage and necrosis. Immunofluorescent tracing demonstrated the presence of both donor and recipient lymphocytes in the same material. The remaining 61 animals showed similar but less distinct changes . A feature common to most of the recipient rats was that they succumbed to GVHD after spleen grafting. Sequential laboratory monitoring demonstrated complement consumption and the presence of a complement-dependent haemolytic anaemia. Spleen isografts failed to change the course of the recipients' tumours.

This in-vivo model provides a simple means of studying the destruction of an established, metastatizing tumour.

1. Bitter-Suermann, H. (1974): Induction of lethal graft versus host disease in rats by spleen grafting. J. Surg. Res. 17: 352.

AGENDA FOR THE BUSINESS MEETING OF THE BRITISH TRANSPLANTATION SOCIETY
18th October 1978.

1. Minutes of the Business Meeting held on Wednesday, 29th March 1978. (To be circulated at the Meeting).
2. Matters arising from Minutes:
   a) Brain Death Criteria: The C. M. O. has circulated a reprint of this document to all Hospital Practitioners, in November 1977, with a covering letter urging co-operation with Transplant Units.
3. Election of Officers and Committee members for 1978/79, as follows:

	Elected	Due to Retire
Chairman - Professor P. J. Morris	1976	1979
General Secretary - R. A. Sells	1975	1978
Meetings Secretary - R. W. Blamey	1976	1979
Treasurer - Dr. M. W. Elves	1975	1978
Ordinary Committee Members:		
J. R. Salaman	1975	1978
D. Hamilton	1976	1979
Dr. Mary G. McGeown	1975	1978
Dr. B. Hulme	1977	1980
Dr. Valerie Joysey	1977	1980

Dr. A. R. Sanderson, B.S.I. Representative.

As outlined in a PRELIMINARY NOTICE issued to all members on the 14th July 1978, the posts of General Secretary, Treasurer and two ordinary Committee members fall vacant in October 1978. The following nominations have been received:

General Secretary - Mr. J. R. Salaman (proposed by R. S. Sells, seconded by D. Hamilton)

Treasurer - Dr. M. W. Elves (proposed by P. J. Morris, seconded by B. Hulme)

Ordinary Members - Mr. Ross Taylor (proposed by P. J. Morris seconded by J. R. Salaman) Dr. T. Briggs (proposed by M. McGeown, seconded by B. Hulme)

No other nominations have been received by the General Secretary before August 18th, 1978 (See Rule 15).

4. General Secretary's report.
5. Treasurer's report.
6. Future Meetings. Meetings Secretary to report.
7. Transplantation Society meeting in 1982. Professor Leslie Brent to report.
8. Circulation of publicity leaflets to members.
9. Honorary membership.
10. Election of new members: The following applications have been considered and approved by the Committee:

SPENCER, Susan.	HORSBURGH, T.	WOOD, P. J.
CRAIG-GRAY, J.	GOKAL, R.	DALCHAU, Susan.
McKENZIE, Judith	SHENTON, B.	MISTRYN, N.
MERKEL, F.	NAYAK, R.	BOLHUIS, R.

11. Training in Clinical transplantation. Professor P. J. Morris to report.
12. Any other business.