of *Trichuris trichiura* infection in hospitals for the mentally subnormal in the U.K. and reported the successful treatment of patients with difetarsone. This note describes the location of the major source of infective eggs of this parasite in one of the hospitals surveyed, Cell Barnes Hospital, St. Albans, and reports the activity of chloropicrin against the eggs.

In a search for the source of infection, the only site within the buildings where fully embryonated eggs were encountered was in the laundry, at a point between the intake of dirty linen and the first wash. However, it was thought unlikely that these numbers of eggs were responsible for the heavy infections seen in some wards. Eggs were also found elsewhere throughout the buildings, but none showed signs of development to the infective stage.

Small soil samples of 1 or 2 g were taken from the play areas of two heavily infested wards, nos. 18 and 1, but no eggs were found. However, because infection with *T. trichiura* via the soil has been accepted for many years as the mode of transmission in the tropics, it was decided to investigate further the possibility that soil from the playgrounds could be the source of infective ova. A 25-lb (11.3-kg) sample of top soil was taken from the play areas of ward 18 and ward 1 and the eggs extracted by a semi-mechanical sieving and sedimentation technique described by Beer¹. In the sample from ward 18, where the parasite has been known to be present for a number of years, approximately 10,000 fully infective eggs of *T. trichiura* were recovered. In the sample from ward 1, into which infested patients were moved only one year ago, 2,000 fully infective eggs were recovered. In a follow-up examination in which 1-in (2.5-cm) layers were taken from an area approximately 8 in (20.3 cm) square, down to a depth of 12 in (30.5 cm) in ward 18 and 15 in (38.1 cm) in ward 1, infective eggs were randomly distributed in each of the layers. In ward 18, 100-2,000 eggs were found per layer and in ward 1, 25-500 eggs were found per layer.

As pica is commonly practised by sub-normal patients and has been frequently observed at Cell Barnes Hospital, it would appear that infection with *T. trichiura* is principally via the soil. Development of these eggs to the infective stage in soil would be a comparatively slow process in the U.K., where the mean ambient temperature is lower than 20°C, as ova require more than 120 days at 15°C and up to 57 days at 20°C before becoming infective.²

As far as could be determined from a search of the literature, there appeared to be no compound that was effective against ova of *T. trichiura*. The compound chloropicrin (trichloronitromethane) is used commercially on a contract basis for the treatment of soil nematodes and seemed worthy of evaluation in the laboratory. The large numbers of *T. trichiura* eggs required for this work were not readily available, so we used the more easily obtainable ova of the very closely related species, *T. suis* of the pig³. Eggs of *T. suis* in lots of 10,000 were exposed to serial ten-fold dilutions of chloropicrin in water for 24 hours, washed thoroughly, and incubated at 30°C for five days. In repeated experiments 1/1,000 dilutions completely inhibited embryonation, while 1/10,000 was without effect. A similar experiment was undertaken using eggs which had been incubated previously for 14 days, and again a 1/1,000 dilution arrested development of the larvae.

The evidence suggests that chloropicrin should be evaluated for sterilization of the soil in the areas responsible for reinfesting patients. It is known that the eggs of *T. trichiura* can survive for many years in the soil, and failure to sterilize the soil will result in repeated reinfections over long periods. Treatment of soil should therefore be under-

taken at the same time as treatment of the patients.—We are, etc.,

E. A. GREEN

Cell Barnes Hospital,
St. Albans

R. J. S. BEER

A.R.C. Institute for Research on Animal Diseases,
Compton, Berks

D. C. JENKINS
J. A. MCFADZEAN
I. M. PUGH

Research Laboratories,
May and Baker Ltd.,
Dagenham

- ¹ Beer, R. J. S., *Parasitology*, 1972, **65**, 343.
- ² Dinnik, J. A., and Dinnik, N. N., *Meditsinskaya Parazitologiya i Parazitarnye Bolezni*, 1937, **6**, 603.
- ³ Beer, R. J. S., Ph.D. Thesis, University of London, 1972.

Gram-negative Bacilli on Hands

SIR,—In their interesting report on the skin bacteria of hospital staff (9 June, p. 580) Drs. Johan N. Bruun and Claus O. Solberg conclude that "Gram-negative bacilli should be regarded as frequent members of the resident flora" and that the incidence of "hand-carriage" of such bacilli is increased by the use of hexachlorophane soap. The data presented do not, however, support these conclusions.

Though "coliforms" and other Gram-negative bacilli were isolated from the washed hands of 110 out of 624 staff members, only eight of these consistently yielded Gram-negative bacilli over a period of several months. These "persistent carriers" yielded identical strains throughout this period in only six cases, and five of these individuals actually had clinical paronychia and chronic "skin irritation."

The colonization of skin by Gram-negative bacilli is rare except in areas that are already diseased or damaged.^{1,2} In contrast to true carriage, the hands of members of staff frequently yield large numbers of Gram-negative bacilli which are repeatedly acquired from the hospital environment.³ Drs. Bruun and Solberg have previously shown that the regular use of hexachlorophane preparations is far more effective at preventing the transient contamination of skin by hospital strains of *Staphylococcus aureus* than by Gram-negative bacilli.⁴ They have not however shown that Gram-negative bacilli are permanent members of the flora of healthy skin.—I am, etc.,

SYDNEY SELWYN

Westminster Medical School,
London S.W.1

- ¹ Selwyn, S., and Chalmers, D., *British Journal of Dermatology*, 1965, **77**, 349.
- ² Selwyn, S., and Ellis, H., *British Medical Journal*, 1972, **1**, 136.
- ³ Selwyn, S., *Journal of Hygiene*, 1965, **63**, 59.
- ⁴ Bruun, J. N., Boc, J., and Solberg, C. O., *Acta Medica Scandinavica*, 1968, **184**, 417.

Hepatitis-associated Antigen in Chronic Hepatitis

SIR,—We have previously shown a clear difference in the incidence of hepatitis-associated antigen (H.A.A.), as determined

Disease	No. of cases tested	No. H.A.A.-positive	
		C.F.	R.I.A.
Chronic aggressive hepatitis	42	31 (73.8%)	33 (78.6%)
Chronic persistent hepatitis	24	3 (12.5%)	6 (25.0%)

by complement fixation, between chronic persistent and aggressive hepatitis.¹ These findings could be explained either on the basis of an aetiological difference between the two forms or because of failure of the technique employed to demonstrate the antigen in all of the cases.

Since then we have studied 66 cases of biopsy-proved chronic hepatitis by both complement fixation (C.F.) and radioimmunoassay (R.I.A.). The latter method gave positive results for H.A.A. in five cases which had been negative by complement fixation. Moreover, we were able to confirm our previous findings of a sharp difference in the incidence of H.A.A. in the two forms of hepatitis (classified according to De Groote *et al.*)² (see table).

Therefore it is likely that, in a region like ours (Campania, South Italy) in which there is a high incidence of H.A.A. in chronic liver diseases,³ chronic aggressive hepatitis is in the vast majority of cases related to virus B, which seems to be associated with only a limited number of cases of chronic persistent hepatitis.—We are, etc.,

CAMILLO DEL VECCHIO-BLANCO
MASSIMO RINALDI
OTTAVIO SAFFIOTTI
MARIO COLTORTI

Clinica Medica Generale and Semeiotica Medica I,
I Facoltà di Medicina,
University of Naples,
Naples, Italy

- ¹ Carrella, M., del Vecchio-Blanco, C., and Coltorti, M., *British Medical Journal*, 1972, **2**, 169.
- ² De Groote, J., *et al.*, *Lancet*, 1968, **2**, 626.
- ³ Del Vecchio-Blanco, C., Carrella, M., and Coltorti, M., *Acta Hepato-Gastroenterologica*, 1973, **20**, 138.

Androgens and Exercise

SIR,—Dr. J. R. Sutton and others have reported (3 March, p. 520) significant increases in serum androgens in response to maximal exercise in athletes and normal male students. We have recently obtained results on serum androgens in immobilized patients which may illustrate the converse effect.

During investigation of a new radioimmunoassay kit for serum androgens (Sorin, Italy) a series of determinations were conducted on serum specimens surplus to requirements for requested biochemical tests on male inpatients, together with serum from healthy male volunteers. Our results are shown in the table.

Group	No. Tested	Serum Androgen Concentration (ng/ml)	
		Mean	Range
Healthy men	4	4.4	3.6-5.0
Ambulant male patients ..	4	5.5	2.8-9.4
Immobilized male patients	15	0.6	0.2-1.5

Serum androgen levels in the normal men and in the ambulant male patients were all within previously reported normal ranges,¹ but were markedly depressed in immobilized, severely ill male patients. The mechanism of

this effect is unknown and findings are the opposite to those on serum corticosteroids in immobilized patients, which are significantly raised.² There may be either reduced testicular response to gonadotrophins or decreased hypothalamus-pituitary gland activity.

It would seem that both extremes of physical activity have significant effects on serum androgens in men.—We are, etc.,

M. H. BRIGGS
P. GARCIA-WEBB
THOMAS CHEUNG

Alfred Hospital,
Pahran,
Victoria, Australia

¹ Chen, J., Zorn, E., Hallberg, M., and Wieland, R., *Clinical Chemistry*, 1971, 17, 581.

² Korpassy, A., Stoekel, H., and Vecsei, P., *Acta Anaesthesiologica, Scandinavica*, 1972, 16, 161.

Doxycycline in Enteric Fever and Brucellosis

SIR,—We have been familiar in the past 35 years in Egypt with enteric fever as well as brucellosis and their traditional treatment with chloramphenicol and chloramphenicol and streptomycin respectively.

During practice in the past two years in Nigeria we have been treating such cases with doxycycline. Recently we treated 20 cases suffering from either or both diseases. These patients had typical clinical manifestations and positive agglutination tests (for *Salmonella typhi* (5 cases), for *Brucella abortus* (5 cases), for both (6 cases), and for *Salm. typhi* and *paratyphi B* (4 cases), with rising titres. Defervescence was recorded on the fourth day of treatment on the average, together with marked amelioration of clinical symptoms. The patients were followed up for one month with no evidence of recrudescences or relapses.

The successful dosage of doxycycline hydrochloride was 200 mg daily for four days followed by half this dose daily for another six or seven consecutive days (total 1,400–1,500 mg). The dosage previously recommended was inadequate to bring about cure. There was neither any material side effect nor any change in the haematological picture.

Two patients with icterus, included in this series, showed rapid improvement in liver function as well as in their general condition.—We are, etc.,

A. Z. SHAFEEI
W. S. LUKA

General Hospital Ilorin,
Kwara State, Nigeria

Psychosurgery

SIR,—We settled down to read with interest the recent discussion on ethics, rather contentiously entitled "Changing the Patient's Personality" (9 June, p. 594), only to be disappointed because much of the discussion showed little awareness of contemporary psychosurgery.

Dr. Henry Rollin in particular could easily have been speaking 30 years ago in presenting his views about psychosurgery. He may like to be reminded that the enormous vogue for standard leucotomy occurred largely during the 1940s, and Tooth and Newton¹ described the results of over 10,000 such operations carried out up to 1954. This early operation was largely used in cases of schizophrenia, though it was noted on several

occasions that affective psychoses responded much better. But in those days schizophrenia was the primary therapeutic problem and, for many patients, the crude standard operation was probably preferable, with all its risks of serious side effects, to the continuation of chronic and severe psychological disturbance. As the *Lancet*² has put it, "such was the enormous pool of psychotic patients vegetating as chronic sick in the closed wards of mental hospitals, without effective drug control and without hope, that, when it became possible to help them in any way, this new method was taken up with more enthusiasm than caution, and with more technical skill than psychiatric or neurophysiological understanding."

With the advent of potent psychotropic drugs in the 1950s the use of psychosurgery declined greatly and the situation is now fundamentally different in two respects; firstly, psychosurgery is now only very rarely used for schizophrenia and, secondly, the operations have been considerably refined, with the result that effects on the personality are rare and, where they occur, are usually of socially negligible effect. The title of the discussion thus prejudices the issue.

Psychosurgical operations have continued to be modified and one of the most recent techniques which has become the most frequently used is Knight's stereotactic subcaudate tractotomy,³ the clinical effects of which have been reviewed by Ström-Olsen and Carlisle⁴ and by Bridges *et al.*⁵ This has proved a valuable treatment for those few patients disabled by chronic depression, obsessional neurosis, or anxiety whose response to routine treatments is temporary or inadequate. Effects on the personality depend to some extent on the criteria employed but they are certainly rare with this operation and where they occur they are mild. Probably the most serious side effects is that of epilepsy, occurring with an incidence of about 1%, but patients are usually willing to accept this if relief is offered from chronic and disabling psychiatric symptoms.

Dr. Rollin states "I solemnly took a vow many years ago that under no circumstances would I ever recommend another [psychosurgical operation]. . . . To do a destructive operation on such an infinitely delicate and complex organ is like kicking some equally delicate and complex machine which is out of order. . . ." This credo sounds rather grand and just a bit idiosyncratic, but it would be of little help to a chronically depressed and suicidal patient who has been able to obtain no relief from other forms of treatment. In addition it is a view that does not acknowledge the development of other treatments in medicine, often established empirically.

The most important aspect of the discussion concerned the use of psychosurgery for abnormal aggressive behaviour where the ethics are so far totally uncharted. Knight's stereotactic tractotomy is most unlikely to be indicated in such cases so we have no experience in this unit of the problems involved. It would therefore have been instructive to learn the views of others had they got their ground work clearer first.—We are, etc.,

P. K. BRIDGES
JOHN R. BARTLETT

Geoffrey Knight Psychosurgical Unit,
Brook General Hospital,
London S.E.18

¹ Tooth, G. C., and Newton, M. P., *Leucotomy in England and Wales 1942-1954*, Ministry of Health, Reports on Public Health and Medical Subjects No. 104. London, H.M.S.O., 1961.

² *Lancet*, 1972, 2, 69.

³ Knight, G. C., *British Journal of Psychiatry*, 1969, 115, 257.

⁴ Ström-Olsen, R., and Carlisle, S., *British Journal of Psychiatry*, 1971, 118, 141.

⁵ Bridges, P. K., Goktepe, E. O., and Maratos, J., *British Journal of Psychiatry*. In press.

American Medicine

SIR,—It is regrettable that Professor L. J. Witts in his Personal View (5 May, p. 299) should lend his prestige to propagating the myth of the "inferiority" of American medicine, and that apparently on the basis of reading one man's book on the subject. Does Professor Witts encourage his students to publish papers without experimental verification?

In 1970 I practised for five months as a locum consultant surgeon in England and worked in five provincial hospitals. In none of those hospitals was there a formal training programme for the residents such as is demanded in the U.S. In none of them did I find an intermittent positive-pressure breathing machine, whereas in the 200-bed community hospital I practise in here there is a separate department of respiratory physiology so that I.P.P.B. and blood gas analysis are available day or night. You stated in a recent leading article (21 April, p. 131) that T-3 and T-4 tests for thyroid function are not yet generally available (in the U.K.). In our hospital these tests are a matter of routine. In America general practitioners are everywhere included on hospital staffs, and though the independent family practitioner is not as common as formerly, our hospital has an outpatient department staffed by five family practitioners and open from 9 a.m. to 9 p.m. every day of the week.

Having practised in seven countries on four continents, I believe that the overall standard of medical care in the U.S. is the best I have seen, and that includes the U.K. True, medical care is expensive here, but then salaries are higher than elsewhere and the cost can be, and is in most cases, adequately covered by insurance. Medicaid takes care of the indigent and Medicare of the elderly. Legislation has already been passed which makes the Government responsible for the cost of dialysis and kidney transplantation, and finally legislation is pending for government funding of so-called catastrophic illness.

One could continue to enumerate many more positive aspects of American medicine, but Professor Witts must know that there are a great number of expatriate British doctors, and I am sure they would provide him with plenty of evidence to rebut what he reads in a book. I suggest, therefore, that Professor Witts comes here and sees for himself the state of American medicine before condemning us all on hearsay evidence.—I am, etc.,

I. LANGDALE GREGORY

Norwich, N.Y.

Haemophilus influenzae Apparently Resistant to Trimethoprim

SIR,—Professor J. R. May and Mrs. Judith Davies (12 August 1972, p. 376) suggested that the incidence of strains of *Haemophilus*