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(Application forms are available from the Medical Staff Office)

Further information may be obtained from the Professor of Surgery or from Miss Turner in the Medical Staff Office.

J. W. GOODDY,
Clerk to the Governors.

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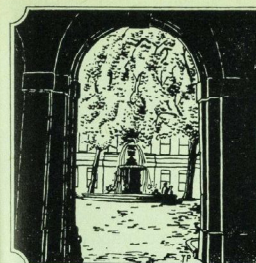
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Saint Bartholomew's Hospital

JOURNAL

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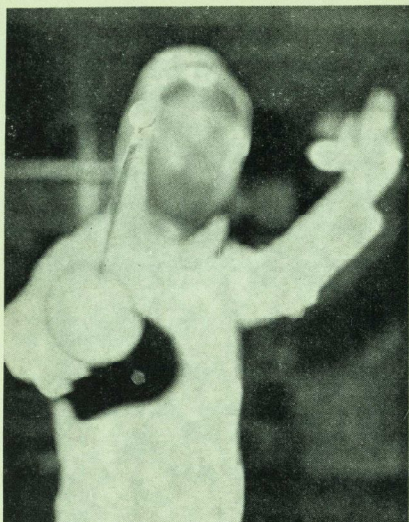


photo by A. F. Cornelius

SPORTS NEWS

THE NOBLE ART OF FENCING

The history of Fencing probably reaches back to the time when an hirsute Homo Sapiens derived aesthetic pleasure from impaling his neighbour with a pointed stick rather than from removing his cranium with a blunt tree.

These basic pleasures of native cunning, beauty of speed and pure physical strength are still to be found in the modern art of Fencing, despite rules, regulations and the threat of life imprisonment.

St. Bartholomew's Hospital Fencing Club meets each Monday evening atop Gloucester House Nurses Home, and is open to any member of the Hospital community, whatever their discipline.

Tuition is available in all weapons and the standard varies from the obese, uncoordinated beginner to the University and Olympic Training Squad. A few months ago, the Hospital was placed second in the United Hospitals Competition, and more matches are gestating.

As this is Olympic Year and British fencers are again expected to add several medals to the National total, a brief guide to the methods and weapons used in Mexico may be of help to the reader:

FOIL: Using an essentially delicate weapon, the Foilist attempts by cunning and lightness of hand and foot to place the point of the blade onto the opponents target, whilst abiding by the classical conventions of thrust and parry.

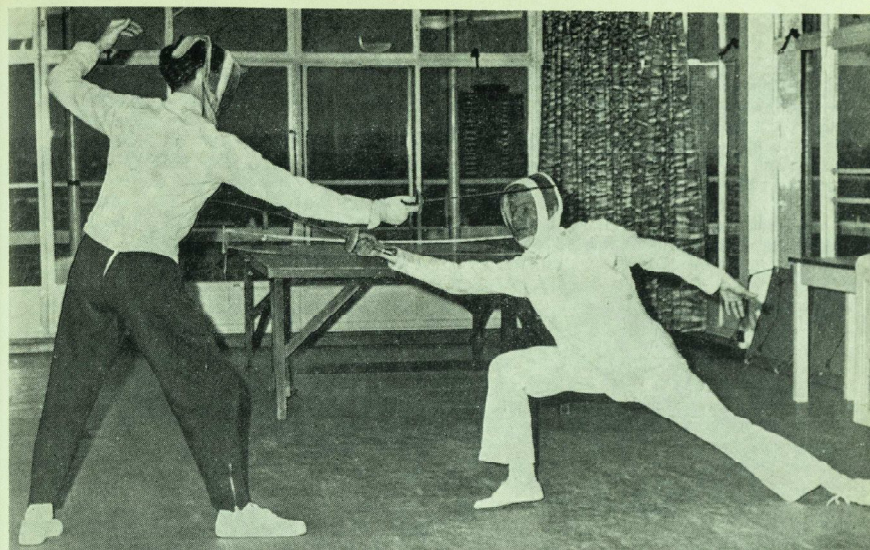
EPEE: The direct descendant of the duelling sword is used by the fencer to pierce a hole in any part of the opponent, before being hit himself. This weapon is best used by those with a strong wrist and coordination between eye, arm and leg, lest interesting pieces of bent and broken steel result.

SABRE: the most spectacular weapon from the non-believers point of view, the Sabre is used to carve little pieces off one's opponent, theoretically above the hips. Stamina, native cunning, acceleration and a sense of time and space are required. A knowledge of surface-anatomy is useful and often rewarding.

Fencing is then, a rather superior sport for the athlete who wishes to engage in a battle of wits as well as bodily exercise. Some readers undoubtedly think that Fencing is only for school-girls and retired parsons, and that a true sport consists of attempting to cripple the opposition by brute strength.

To this uneducated few an open invitation exists to come and try for themselves the finer points of the sport. I personally will also take the greatest pleasure in demonstrating, on them, that the touch of cold, tempered steel can induce Tumor, Dolor, Rubor and Calor on various parts of their anatomy, without breaking any rules. Or bones?

Bob Brearley



Fencing at Bart's

photo by A. F. Cornelius

CANOE CLUB REPORT

SPECIAL NEWS THIS MONTH:

At the British Universities Slalom Championships held in North Wales, the winning London University Team was formed by 2 Barts Paddlers and one other. The Barts Paddlers were Peter Durrey and John Albert. Peter deserves special congratulations as he also managed to pass 2nd MB with flying colours. There is a lot of talk in the air of forming a London University Slalom Club and no doubt Bart's will play a prominent part. In the south most training for slalom canoeing has to be done on weirs such as Shepperton or Hamble, though basic skills are best learnt on flat water. The slalomists then take advantage of weekends to travel to the white water rivers of North Wales and Scotland. John and Peter are both on holiday now but I'm sure that, when they get back, they will be pleased to

give instruction to anyone interested in this branch of the sport. During the winter, a lot of training goes on in the swimming Baths at Seymour Hall—great fun and a bit warmer than some of the mountain streams.

More news—Charles Evans (ex-Bart's) has been selected to represent Britain in the International Long Distance Race held in Spain. This will be his 6th year as part of the team, last year—after winning for two years running—he was narrowly beaten by a Spaniard. This year the international competition threatens to be even greater with most paddlers training extra hard in view of the Olympics in October. However, we've been training hard in Britain as well, and the Sella is a race which demands a great deal of skill, experience—and luck.

A. Huskisson.

CRICKET CLUB

May 21, Hospital's Cup Semi-Final v. U.C.H.

Barts batting first started in their usual style by losing the first two wickets for 21 runs. Then P. Furness came in, and a stand between him and G. Purcell put on 50 runs before Furness was caught in the deep for 38. The loss of this wicket shortly followed the arrival of U.C.H.'s best bowler who proceeded to take 6 wickets in the next hour, during which time Barts managed to take their total up to 101 all out shortly after lunch.

Barts took to the field with very little hope, 101 just didn't seem enough in spite of our previous cup record. However, when U.C.H. got to 44 for 4 the prospect of success took on a more rosy aspect. Then U.C.H. lost 3 wickets adding only 2 runs to their total and tea was taken with the score standing at 67 for 7. After tea U.C.H. only managed to add a further 9 runs before they were all out. This victory was not due to any single effort, as is so often the case, but was due to some excellent fielding by all the team.

Scorecard

Bart's Batting

G. Purcell b. Wragg	28
R. Jones ct. Hazelwood b. Greenwood	7
R. Higgs ct. Sub. b. Greenwood	2
P. Furness ct. Carmichael b. Wragg	38
P. Wood b. Wragg	4
D. Berstock ct. Hazelwood b. Shaffer	0
D. Grieve b. Wragg	3
I. Hann b. Wragg	0
E. Lloyd b. Wragg	14
T. Shepherd b. Shaffer	0
D. Edmondson not out	0
Extras	4
Total	101

U.C.H. Bowling

Wragg 6 wickets for 13
Greenwood 2 wickets for 15
Shaffer 2 wickets for 31

June 2 v. Presidents XI at Trottsicliffe

The perfect setting for one of the more social of the years fixtures. Ale was taken before the match at the George Inn at Trottsicliffe and this accounted for a late start to the cricket.

Trottsicliffe won the toss. At tea they were 94 all out having had to face some bowling which could only be termed "interesting" at times.

Poor start

After a very poor start in which Barts lost 4 wickets for 5 runs, S. Thomas (52) scored the necessary runs with a little support from the middle order batsmen.

Ale

Ale was again taken at the George Inn and later turkey sandwiches, black coffee and Malt Whisky at Mr. Dunkley's house.

U.C.H. Batting

Long b. Edmondson	12
Weston-Price ct. Shepherd b. Edmondson	4
James ct. Berstock b. Lloyd	11
Paris ct. Shepherd b. Berstock	4
Haffahee st. Shepherd b. Lloyd	12
Greenwood ct. Grieve b. Edmondson	1
Wragg ct. Grieve b. Berstock	17
Tonge run out	0
Hazelwood ct. Grieve b. Berstock	12
Shaffer not out	1
Carmichael b. Berstock	0
Extras	2
Total	76

Bart's Bowling

Berstock 4 wickets for 25
Edmondson 3 wickets for 41
Lloyd 2 wickets for 8



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RIFLE CLUB

On Friday, July 19th, we went down to Bisley to try and retain the United Hospitals Cup for the third year, but were unlucky in having three of our best shots away or unavailable. There was chaos again this year and as a result the 200^x shoot was abandoned through no fault of our own. The management of this competition is always a bit vague but this year it quite surpassed itself and we eventually organised ourselves at 500 and 600 yards. Despite having a weak team we were only four points behind a very good London Hospital team. I hope we will be able to avenge our defeat next year.

Imperial Meeting

In the Imperial meeting we only had one representative this year. Despite being unable to shoot on the first Saturday, Ian Franklin had a very successful Bisley which was crowned by being selected to represent the County of London in the County Long Range Championships. Sunday was his best day when he got into all four prize lists for that day; and came fifth of 800 in the Sunday aggregate. His best shoot was probably in the Duke of Cambridge where he scored 48 ex 50 at 900^x to be placed 14th ex 950.

Queen's Prize

In the Queen's prize, which is the major event of the week, he managed to get into the second stage by making a possible at 600^x to finish with 99 ex 105. Unfortunately in the second stage the tension proved too much. He only needed an inner on his last shot at 600^x, but got a magpie instead to finish with 139 ex 150: one point short of the 140 required to get through this year.

7.62 mm.

He has recently bought one of the new 7.62mm. rifles that are going to be the only rifle allowed soon when the .303 goes out. He tried this rifle in two of the smaller competitions and scored 34 ex 35 at 200^x and 49 ex 50 at 500^x. Both points being the fault of the shooter rather than the rifle. From his limited experience the 7.62 seems a much nicer rifle to us and also appreciably more accurate. I hope the Club will soon be able to equip itself with them.

Ian Franklin

MEN'S TENNIS CLUB REPORT

Saturday, July 6th v. City University. Won 9—0.

After a lean period in June, this was a good win, the third pair of Houghton and Dieppe being outstanding.

Saturday, July 13th v. Westminster Hospital. Won 5—4.

A much depleted team scraped home in this damp match at Cobham. I don't think Chris Garrard and Julian Wenger quite realised their full potential in the first match, but improved as the day went on.

Saturday, July 20th v. U.C.H. Lost 4—5.

A very enjoyable afternoon with the social standard being higher than that of the tennis.

Wednesday, July 24th—Inter Bart's Tennis Tournament.

This had to be postponed twice because of bad weather conditions, but finally 15 players arrived for the tournament. The players were divided into four groups each playing each other with the winner reaching the semi-finals. There were some interesting variations on how to play singles, notably from D. Davies.

The semi-finals and final produced some encouraging tennis, with the winner, John Ussher, raising his game to outclass Chris Hunt in the final.

Results :

Semi-final
 J. Ussher }
 I. Sitwell } Ussher, 6—3, 6—1
 C. G. E. Hunt }
 V. Blanchette } Hunt, 6—4, 6—2

Final
 Ussher }
 Hunt } Ussher, 6—1, 6—2.

Chris Hunt

incomplete memory

A SHORT STORY BY MALCOLM FLETCHER

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I recognised the back of her head through the haze of cigarette smoke, those long brown locks flowing in an irresistible tumble over her shoulders; and walked towards her trying to place the time and location of our last meeting. It must have been long ago, I could hardly remember her name.

I placed a hand gently on her shoulder, she turned and those wide spaced childlike eyes, with wrinkles at the edges now, greeted me as they always had done, a suggestion of a tear and the weariness of it all, resting in another heart again.

She didn't speak, only held out her hand and clasped mine with an undiminished affection. There was a gentleman with her, clutching a pint of ale in a hand that looked deceptively practical, in view of his sensitive face and distinguished expression. He wasn't a very young man and he obviously did not regard himself as one, I felt this by the way he looked me up and down, making me feel even younger than my twenty years.

She struggled to introduce me, this was her husband and I was . . . She could not find my name. I filled in the detail.

"Edwards, Brian Edwards." Instead of appearing relieved and remembering my name after all, she seemed to be very puzzled. In a faraway voice she said.

"Brian and I met during the war darling, I must have told you about him dozens of times, we worked together in the maquis." Her husband seemed confused and now it was my turn to be puzzled, the war to which she referred had been won several years before my birth, I couldn't have fought with her in the French resistance.

We all sensed the strangeness now and I looked uneasily down at my feet, finding myself wound up in an odd sort of misunderstanding.

Where had it been that I had known her, so ridiculous, I felt as though I knew nearly everything about her, like the way she gently rubbed her ankles against each other, when she was nervous, just as she was doing now. I

caught a whiff of her scent, it was the same, the one she loved that was sold only in a particular shop in Monmatre. My heart pounded inside my chest as she looked up again into my eyes and intoned the name "Francois", just the same with her soft Parisien accent.

I sat down quickly in an armchair becoming aware for an instant of the bar round about me and the way life was proceeding at its usual normal pace. The eyes of her husband became sharp, just as a thousand little memories of the way we had loved each other flooded through my mind. She talked quietly now.

"You are the ghost of Francois, please go back to rest again." Closing my eyes, I said my name once very rapidly to myself and once a little louder to them, then opened my eyes again to a look from her, which melted the universe beneath my feet and made me love this frail little middle aged woman with wrinkles on her face, as though she was 18 again and the sky was full of hope for us.

Time stood still and I had a vision of a sea of corn in Normandy, the day was hot and we strode high to avoid the stalks, we loved each other then and in a week or so the wise old curé, whose loft was full of plastic explosive, and handgrenades, was going to bury us. I heard a fumbled rustling in the hedge and a menacing click, her hand tightened and a river of fire arced out towards us. I don't remember anything after that.

She looked up to the spangled ceiling of the bar and said. "They cut your face away in the first burst and I saw you were dead even before you fell. After that they fired at me and I ran away with heavy bullets pulling at the air beside my ears. You were dead, when I left you Francois!"

Nothing to do now, she had grown up and grown older without me, I had been reborn into another world and had to live with it. I drained the glass, which had been in my hand all the while, put it down on the table and walked away.

poems

NATURAL CONSEQUENCES

because the moss was dead
 the river too deceased
 bore stones of discontent
 they lay unblushing
 hot among beds of hailstone greys
 or violent orange bracken
 because the hare was lame
 rabbits ran behind him
 spare legs tucked in their ears
 then lightning broke all backs
 legs charred devoured in flames
 because the grass was yellow
 gorsebushes did not flower
 but enlarged spikes and pricked
 a happy bird in a bush
 unwittingly singing its dirge
 because eager pine trees grow
 lumber is chopped in their youth
 cones fallen for pregnant women
 prophesy no forbearing door
 because the path was straight
 tangential feet plod round
 a circle driven by minds
 knowing nor left nor right
 because memorys not enough
 pretty plants plunder the soil
 air becomes foul and pollutes them
 worms cut in two never join

METAMORPHOSIS

The sky tossed and became Spring
 Whilst warm wind pushed lumpy clouds
 That seemed too quick for rain.
 Sun encouraged the first buds—
 Green ginger micromissiles.
 The alerting street usurps a sluggard
 Hibernating anonymity—
 Scarves and crumpled handkerchieves:
 Vital awaking.
 Then raindrops sudden hurling
 Pinprick millions through the air,
 A rush for collar turned-up shelter.
 But damp driving dust effaces—
 The rain stings hooded eyes to tears.

THE RETURN

On the return the chairs were empty
 The tables found quite clear
 Quiet charmed the corners
 Hanging smokelike in the still cool air.
 For here there was no-one
 These returning too late:
 But on the back of a chair
 Hung a straw hat, wobbling still.

DEATH, OLD MISER

Death, old miser,
 Caught again
 Storing up your hordes of lives,
 Stacked in some dark churchyard
 Or ash-free in the wind.
 Why must you approach
 So circumspectly?
 Playing with
 one old man for years—
 As if unsure how best
 To add him to your collection.
 You never considered
 The insistent relatives waiting
 For you to mete out
 Your great straightening justice.
 Before you think you want us all
 Using a newer toy
 Leave us—her and I—
 Time enough
 For a little love.

by

Francis
 Martin

John Betjeman

John Betjeman, the poet, lives within a minute's walk of Bart's. At last someone has undertaken the long trek. Here is a verbatim report of what happened.

an interview

by

Malcolm Fletcher

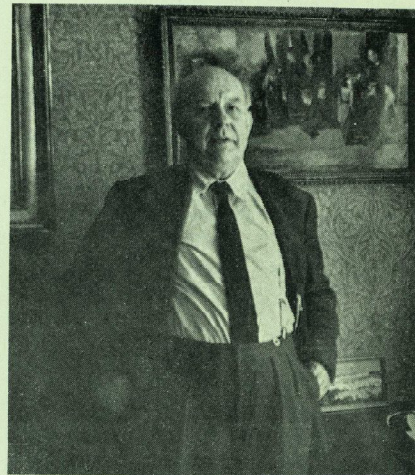


Photo by Julian Torns

He opened the door himself and led the way upstairs to his small office on the first floor. "Oh, you're going to take notes with one of those?"

He pointed to the tape recorder. "How is it for sound?" he asked, clutching the microphone easily. "Fine."

Poetry

Q. Why do you write poetry?

A. Because, when I badly want to express something, it is to me the shortest and most

satisfactory way of writing, using rhythm and rhyme.

Q. To what do you attribute the success of your poetry?

A. If by success you mean financial success, I don't know whether it has been a great financial success because you'd have to sell very expensive books for a lot of copy and my stuff is quite cheap. It has certainly sold, to what I attribute it I don't know . . . luck. Possibly appearing on the television, possibly because I write about things all of us understand, like being afraid, being in love, and because I use language of ordinary speech and even names of firms, which we see advertised all over the place, *Windsore*, or

Craven "A" (it isn't Craven "A" any more, whatever it was).

Successful

Q. Do you in fact consider yourself to be professionally successful?

A. I don't think so, I don't bother much about that. To tell you the truth, I'd have written poetry even if it hadn't sold at all and so would all poets and they would, even at their own expense, print their poems if they felt passionately about them and hoped that posterity would buy them. If by success you mean getting an audience, I suppose I have been very lucky in my lifetime.

Q. What I especially meant was, are you satisfied by what you write?

A. Oh no, of course not, who ever is, no of course not, never as good as what one wants it to be, never. Sometimes you get a bit extra given you, you write something intending to give one effect but it comes out quite the other way, and that I regard as inspiration, that's kindly supplied by the management.

Electricity Pylons

Q. London and the South of England have changed in many respects since you started writing to describe this part of the world, does this area for you still have the intrinsic charm, which is reflected in your poetry?

A. I have a shrewd suspicion that it doesn't, I have an impression that the internal combustion engine has done more harm to the English landscape than anything else, certainly much more than railways ever did; and, of course, aided by advertising companies, who own hoardings and by the electricity board with their needless pylons and wires, which we all know really could go underground but they're too frightened and mean to put it underground. The landscape has been very much spoiled also, of course, we've increased in population so vastly that I think that one

is always looking for something that's not there anymore or if it is there has got a sort of preserved look, which isn't quite alive. Of course there are still lots of parts of England, which are still quite all right, in the South. There are bits of the county of Dorset, North Devon, Inland Cornwall, parts of Somerset, all where the tourists don't go and off the American route, there it's simply lovely.

Misinterpreted

Q. How do you react to other peoples analyses and interpretations of your work?

A. I don't often read them, it's always very gratifying, when they have seen what you were trying to do.

Q. Do you find that people often misinterpret it?

A. Oh yes, yes and they also think that I only like Victorian architecture and only like things that are very ugly, what they think are ugly and that's maddening, in fact it's the most terrible nuisance to become typecast and it's a thing you can't really remedy.

Q. An outstanding thing about your poetry is the polish that you manage to impart to practically every line of it. Do you consciously sit down and try to achieve this?

A. Yes, very, very carefully, it's not inspired in that sense. I get an idea of one line and that line recalls a mood or something I wanted to say and I build round that line; it may come at the beginning of the poem or in the middle or at the end, you can't tell. They are very carefully worked out. I'm glad you called it polished, it's because I have always been used to using set forms.

Soaring Perpendicular

Q. Which object in England is dearest to you? Object as opposed to person.

A. I think the interior of Kings Chapel, Cambridge, I think, it's hard to say. Because of its proportions, its stained glass, its services,

the singing, which used to be so marvellous, I expect it still is, the mystery, the way it holds one. It's a glass symbol of all the soaring perpendicular of East Anglia.

Student Unrest

Q. What do you think of the current wave of student unrest?

A. Haven't thought about it. There was always student unrest and a very good thing too, I think it's the wave of publicity for it, which surprises me.

Q. How do you view the social changes, which have taken place in England in your lifetime?

A. I don't think very much about them. I think that I'd like more research to be done into whether people ought to live in tower blocks. I have an idea that that is one of the most terrible crimes we've committed, putting people into flats and making artificial "fun places" for them, that is to say psychological playgrounds and all the nice dirty comfortable things of life not allowed.

Plastic

Q. How do you regard the phenomenon of California, the hyper-mechanisation of everything . . .

A. And everything plastic? I can't bear it, can you? I think it's simply horrible and the smell. That dreadful smell that always goes with it. A sort of vanillary smell, deep fry or something. All dehumanisation is terrible and I'm afraid most of it comes from America. People are so much nicer than the things made for them.

Q. Do you draw a distinct line between your work and your leisure time?

A. No.

Friends

Q. What about your friends and the people you work with?

A. I don't think I work with people, who aren't friends. Now that's one of the great

advantages of growing old. You can go through absolute hell under a sadistic editor if you're a journalist as I am. I don't keep myself going on poetry, naturally, I have to do it by being a journalist and one form of journalism is television, you must have producers you're sympathetic with. Really they do the work, far more than you do yourself, unless you're sympathetic with them, there's no hope, they won't work for you, or you with them. And so writing articles for newspapers, you can have a sadistic editor, who deliberately gives you work to do that he knows you hate doing and is going to be a great sweat to you.

Terrified

Q. Do you now feel you have all the facilities to express yourself in the way you want?

A. Yes but I now haven't got enough worth saying.

Q. You really find that do you, that you've run out?

A. No but I get given too many things to do and I'm always terrified of going bust. You see if you were brought up as I was in the time of the slump—when I was starting in life, people were very poor and one was always terrified of not being able to provide. And so my chief terror is falling out with editors and things. I've had to live in order to please, I've been a kind of cringe-in-your-eye heap and I've got into the habit now, I can't change.

Vital

Q. So security as such is an important thing to you?

A. Vital . . . I think some people seem to be born secure. Some people go broke or get disgraced and it doesn't seem to upset them and are quite unafraid; but I'm always constantly afraid.

Q. Do you place any value in asceticism?

A. You mean doing without things? Well I so like getting plenty to drink, I really place the highest value on the pleasures of the body. I like them, I'm very grateful for the capacity to enjoy tastes, scents . . .

Q. Do you ever find that your tastes exceed what you are able to afford?

A. Yes, constantly, constantly.

hormones

The authors gratefully acknowledge the help and encouragement given by Dr. G. M. Besser in the preparation of this article.

prepared by
Anthony Newman-Taylor
with
John Burman and
Simon Sutcliffe

INTRODUCTION

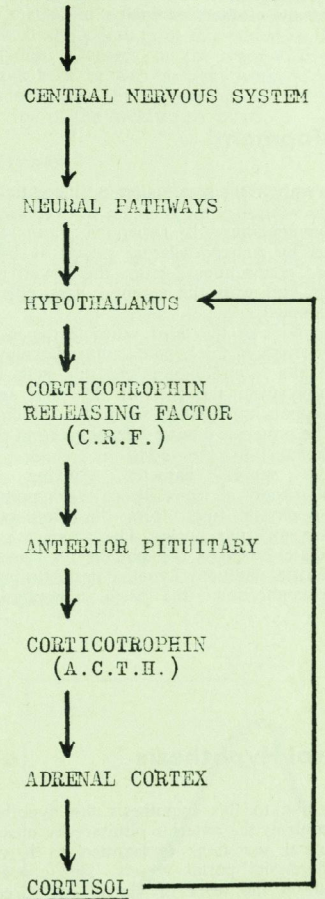
For a long time the pituitary has been regarded as the leader of the endocrine orchestra. But more recent developments have shown that this is too simple a view. Now a more complex and integrated view of its function has emerged.

The effects of the pituitary hormones and the nature of its feedback control has long been recognised. Now the importance of hypothalamic and suprahypothalamic control of pituitary function has been realised.

In this new approach the pituitary is regarded as playing a major rôle in a number of complex systems. Of these the best understood is the hypothalamic-pituitary-adrenal (H-P-A) axis. The control points of this system can be accurately defined and its disorders accurately mapped out by the use of a series of clinical tests which have resulted from these recent developments.

The purpose of this article is to review the function of the HPA axis and to show how the available clinical tests may be used in diagnosis.

STRESS (E.G. Trauma,
Hypoglycaemia, Pyrogen



THE CEREBRO-HYPOTHALAMIC
PITUITARY-ADRENAL AXIS

The Axis

hypothalamic-pituitary-adrenal

Development

In the embryo the hypothalamus differentiates from the ventral portion of the diencephalon. The hypothalamus is separated from the thalamus by a hypothalamic sulcus. It later acquires connections with the overlying thalamus and with the cerebral hemispheres (hippocampus).

In the floor of the third ventricle the most ventral portion of the hypothalamus evaginates to form the infundibulum and this with an evagination from the roof of the pharynx, Rathke's pouch, together form the pituitary body. The posterior pituitary develops from the infundibulum. In the adult it retains its essentially neural character receiving an abundant supply of nerve fibres, the hypothalamo-hypophysial tract, from the supraoptic and paraventricular nuclei. The anterior and intermediate lobes of the pituitary, however, communicate with the hypothalamus through vascular connections—the portal hypophysial vessels.

Control Hypothesis

According to this hypothesis the hypothalamus controls the anterior pituitary by means of chemical secretions transmitted to it via the hypophysial portal vessels. This concept is based on the work of Harris and Green (1955) and of Scharrer (1963) Neuro-secretory substances have been found in the median eminence of the hypothalamus. These have been shown to regulate the secretion of the cells of the anterior pituitary.

The neuro-secretory substances (hypophysiotrophic hormones) are secreted in the median

eminence of the hypothalamus, diffuse into the capillary plexus, and are carried by the veins of the pituitary stalk to the sinusoids of the anterior pituitary gland. This vascular system has been called the hypophysial portal circulation by analogy with the hepatic portal system.

A number of different compounds have been extracted from the median eminence region of the hypothalamus. The function of these hypophysiotrophic hormones has been determined and changes in their concentrations have been shown to correspond with variations in other parts of the system.

To date the substances isolated are: corticotrophin releasing factor (CRF), thyrotrophin releasing factor (TRF), luteinising hormone releasing factor (LRF), somatotrophin releasing factor (SRF), and follicle stimulating hormone releasing factor (FRF).

In the rat depletion of LRF occurs at the stage of the oestrous cycle at which LH secretion is augmented. Similarly following thyroidectomy TRF concentrations are increased. In hypophysectomised rats CRF appears in increasing amounts in the circulation following stress.

In man injections of CRF result in the release of ACTH and injection of TRF the release of TSH.

The demonstration of hypophysiotrophic hormones and the association of changes in their concentrations with parallel changes in target organ function is clear evidence of the control of anterior pituitary function by the hypothalamus. This raises the question of whether the feedback control of pituitary trophic hormones operates at this level.

Feedback

It has been found experimentally that radioactive labelled oestrogen, when injected systemically is concentrated by the hypothalamus as well as by the breast and uterus. Similarly implantation of cortisol in the median eminence of the hypothalamus is more effective in inhibiting adrenal function i.e. lowering of plasma cortisol level, than when placed in the pituitary.

These studies provide ample evidence that the hypothalamus is the level at which feedback control of pituitary secretion is exerted.

In contrast to the pituitary gonadal and pituitary adrenal axes the major site of thyroxine feedback appears to be on the anterior pituitary. That thyroxine may also act on the hypothalamus is suggested by the fact that thyroidectomy alters hypothalamic TRF concentrations. The relative importance of these two sites as controlling points in the pituitary thyroid axis has yet to be elucidated.

Pharmacology

The small area of hypothalamic tissue (in man this part of the brain weighs 4 gms. as compared with a total brain weight of 1300 gms.) must seem surprising when considering its complexity and multiplicity of function. Recent pharmacological studies may have gone some way to resolving this problem.

Hypothalamic neurones have been shown to be both adrenergic and cholinergic. Experimentally the injection of adrenaline into the lateral hypothalamus of the rat causes increased food intake. Increased drinking, however, follows the injection of carbachol, a cholinergic substance. This suggests the possibility that different pharmacological mediators can evoke different responses in the same area of the hypothalamus.

Higher Centres

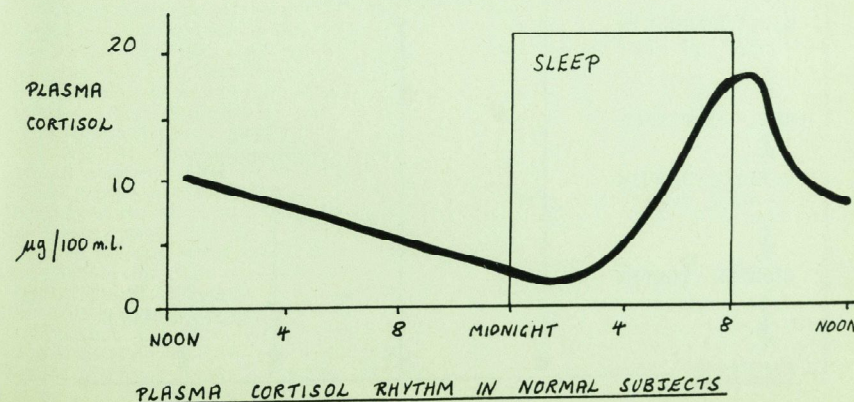
It has long been known that in normal subjects plasma cortisol levels follow a definite

pattern during the twenty four hours of the day, the diurnal rhythm. The levels are higher from about 6 a.m. to 10 a.m., and lower from about midnight to 4 a.m. Recent investigations suggest that the increase in ACTH secretion in the early hours of the morning continuing after waking, is related to episodes of rapid eye movement which are a feature of this period of the sleep rhythm. Changes in the sleep-wake pattern have been shown, in night workers, to result in the same diurnal rhythm over a different period of the twenty four hours.

Stress

Furthermore conditions of stress such as surgical operations and bacterial infections result in an elevated level of plasma cortisol. These changes are ill understood, but it is evident that the mechanisms controlling the stress response involve "higher centres" and are mediated via the hypothalamus.

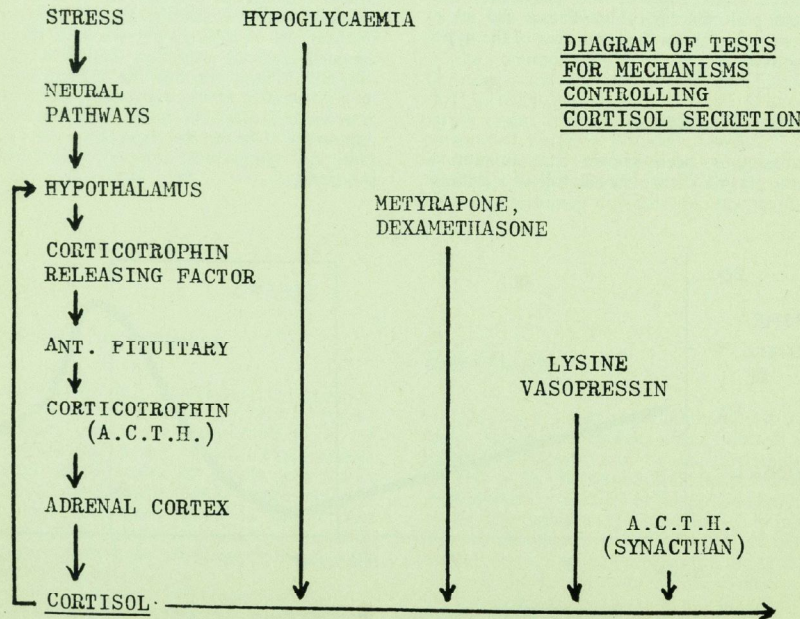
Changes in diurnal rhythm are found in other conditions. A fundamental feature of Cushing's syndrome is the loss of the rhythm, and this may also occur in severe depressive illness. Indeed as Dr. P. W. P. Butler has recently shown at Bart's, all the biochemical features of Cushing's syndrome, including elevated cortisol secretion and loss of the diurnal rhythm but not the clinical features may be seen in severe depression, but they are completely reversible with treatment of the depression. Conversely depression may be an important symptom in a patient with Cushing's syndrome.



Clinical Investigations



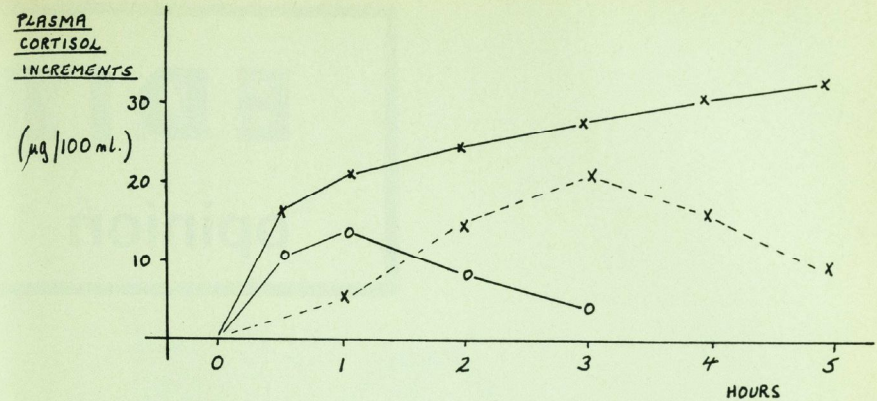
Although the clinical features of different endocrinological disturbances of the pituitary and adrenal glands are well documented, it is now possible to determine more accurately the site of the defect responsible for the disease state.



As can be seen from the diagram different substances can be used to test the integrity of the HPA axis at different levels. With the exception of the metapyrone test all of these investigations are based on estimations of plasma cortisol levels.

Until the development by Mattingly (1962) of effective methods for estimating cortisol levels in human plasma, methods for the estimation of plasma cortisol were too laborious for routine clinical use. Mattingly's method depends on the fluorescence of certain steroids in concentrated sulphuric acid, and only requires two millilitres of plasma for each estimation. This fluorescence is specific to the 11 hydroxy corticoids, which are unique to adrenal secretion. The main 11 hydroxy corticoid in human plasma is cortisol but a small amount of corticosterone is also present.

The pituitary adrenal response to metapyrone is most conveniently determined by measuring the urinary excretion of 17 hydroxy corticoids.



PLASMA CORTISOL INCREMENTS IN NORMAL SUBJECTS DURING THE FOLLOWING TESTS :-

- ×——× A.C.T.H. STIMULATION (SYNACTHAN, 100 µg/h.)
- o——o LYSINE VASOPRESSIN (10 UNITS)
- x-----x INSULIN INDUCED HYPOGLYCAEMIA (0.15 UNIT/KG. BODY WT.)

ACTH Stimulation Test

This test is used principally to differentiate between primary and secondary adrenocortical failure; a lack of responsiveness of the adrenal cortex to A.C.T.H. is diagnostic of Addison's disease.

However significant hypopituitarism and prolonged glucocorticoid administration are nearly always associated with initial adrenal insensitivity to A.C.T.H. Stimulation by A.C.T.H. over a number of days restores adrenal responsiveness, thus distinguishing this situation from Addison's disease.

If A.C.T.H. stimulation tests have demonstrated normally active adrenals, insulin induced hypoglycaemia is next used to test the integrity of the whole axis. Failure to respond to hypoglycaemia indicates a lesion at some point in the axis, which can be more exactly localised by the other tests of HPA axis integrity: lysine vasopressin test; metyrapone test; and dexamethasone suppression test.

Synacthin, a synthetic ACTH preparation, is now generally available and can be administered in precise doses. This allows this test to be used in routine investigations.

Lysine Vasopressin Test

Vasopressin is chemically related to CRF and when administered in adequate doses produces a rise in the plasma cortisol level. This response can be completely abolished by a single dose of 1.5 mgms of dexamethasone suggesting a direct action on the anterior pituitary rather than stimulation of the adrenal cortex.

A simple test using synthetic lysine-vasopressin to test the ability of the pituitary to secrete ACTH has been developed. If, as has been suggested, this substance acts directly on the pituitary to stimulate ACTH secretion (i.e. acting as a specific releasing factor) this would allow a differentiation to be made between hypothalamic and pituitary disorders.

Lysine-vasopressin may cause coronary vasoconstriction, hypotension and cardiac arrhythmia. This test is therefore unsuitable in patients with suspected coronary disease. It may also cause cramp like pain in the abdomen the desire to defaecate and occasionally urgent evacuation of the bowels.

EDITORIAL

opinion

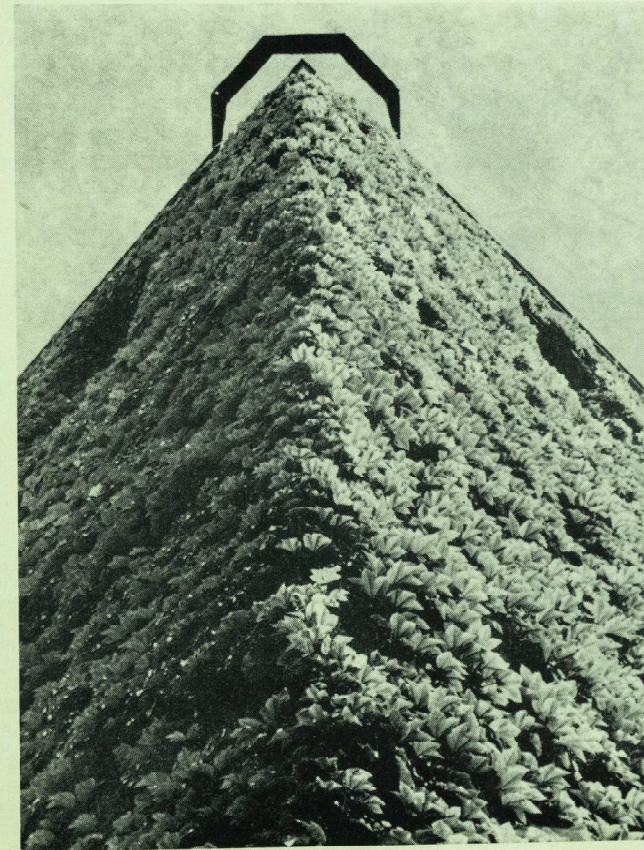
the Pope and contraception

The argument seems reasonable. If a man does not want a child, then he should avoid any act which might give rise to one. Procreation is the natural outcome of coitus, and therefore to interfere with this process merely to satisfy one's own carnal desires is perverse. The idea would work well in medieval Europe. But science today keeps more babies alive. Man's nature is unchanged. Therefore some measure of birth control is essential. Abstinence is unrealistic. Rhythm control is totally unreliable. Forbidding contraception may have preserved the dignity of woman, but it has threatened that of the newborn. The unwanted child will for ever symbolise lack of self control.

dirty bart's

It has been suggested that Bart's looks dirty. At a time when buildings all over London are being reduced to pink new stone, why does our hospital still look grubby? The Henry VIII Gate faces Smithfield Circus, and the meat market. The market has acquired a new awning to protect its massive refrigerated lorries. Why then does not Bart's follow this lead and show a clean face to the world.

photo by A. F. Cornelius



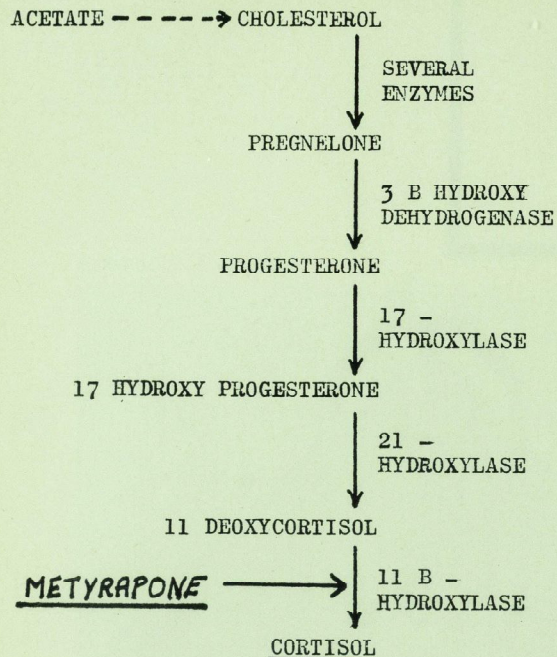


DIAGRAM OF ENZYMIC SYNTHESIS OF CORTISOL AND THE POINT OF INHIBITION OF METYRAPONE.

THIS RESULTS IN LOWERED PLASMA CORTISOL RAISED PLASMA 11 DEOXY - CORTISOL AND URINARY 17 - HYDROXY - PROGESTERONE LEVELS.

the metapyrone test

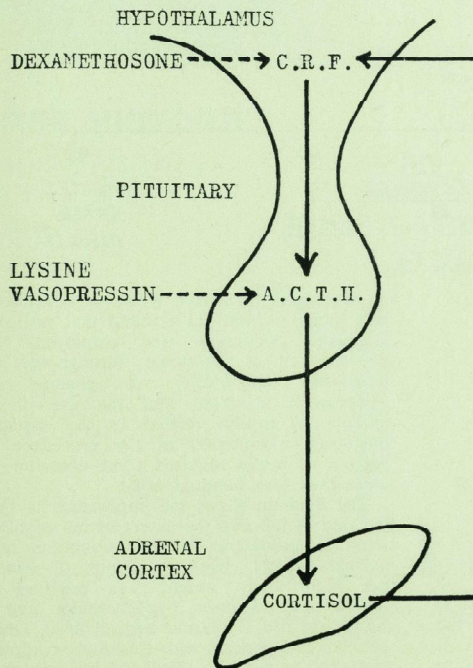
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Metapyrone selectively inhibits the activity of the enzyme 11 beta hydroxylase, thereby interfering with the production of cortisol and corticosterone and causing the production instead of their 11 deoxy precursors. The resultant fall in plasma cortisol level removes the normal feedback control on ACTH and therefore results in a prompt increase in pituitary ACTH secretion. This accelerates adrenal steroid synthesis and increasing amounts of 11 deoxy cortisol and 11 deoxy corticosterone are produced. As a result the urinary excretion of 17 hydroxy corticoids is raised. The measurement of the 17 hydroxycorticoids' excretion on the day before, during, and on the day after metapyrone administration provides a measure of the integrity of the feedback loop.

the dexamethasone suppression test

Oral dexamethasone administered to normal subjects results in a rapid suppression of pituitary ACTH secretion and results in adrenocortical activity.

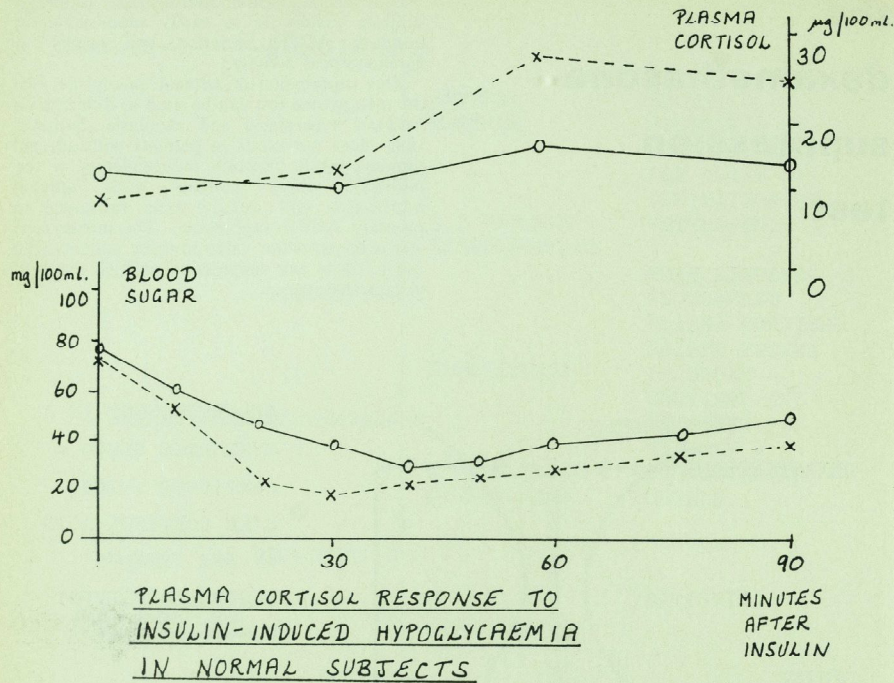
This suppression of adrenal activity as with the metapyrone test can be used to differentiate between hyperplasia and neoplasia. Suppression does not occur in patients with adrenal tumours which function independently of the pituitary whilst patients with adrenal hyperplasia will usually some resistance to pituitary ACTH suppression. The metapyrone test is of particular value in those patients who fail to show any suppression on high doses of dexamethasone.



DEXAMETHASONE IS A SYNTHETIC GLUCO - CORTICOID WHICH LIKE CORTISOL ACTS ON THE NERVOUS SYSTEM TO PREVENT C.R.F. RELEASE

LYSINE VASOPRESSIN IS A SYNTHETIC C.R.F. ANALOGUE WHICH LIKE C.R.F. ACTS ON THE PITUITARY TO INCREASE A.C.T.H. RELEASE

DIAGRAM OF POSTULATED MODES OF ACTION OF DEXAMETHASONE AND LYSINE VASOPRESSIN



the insulin test

In the normal subject ACTH secretion is induced by acute hypoglycaemia although the mechanism for this response is unknown, it tests the responsiveness of the pituitary to suprahypothalamic stimulation.

It has been suggested that the safety of this test in patients with pituitary hypofunction is doubtful because of their increased sensitivity to

its hypoglycaemic effects. However, Greenwood and Landon (1966) have found that provided adequate safeguards are employed (the presence of a physician throughout, the immediate availability of glucose for intravenous injection, and the use of an amount of insulin related to the tentative diagnosis) termination of the procedure by glucose is rarely required (four occasions in more than four hundred tests).

The diagram shows the importance of both the rate of fall and the extent of fall of blood sugar in producing ACTH stimulation in a normal subject. Here 0.2 Units of insulin per Kg body weight was required to produce adequate hypoglycaemia and a significant rise in plasma cortisol level. Obese patients and patients with Cushing's syndrome may not respond to levels of hypoglycaemia which in normal people would be considered adequate. Similarly patients who have received glucocorticoids for long periods may also be resistant.

case 1



First presented in 1962 and a diagnosis of pituitary dependant Cushing's disease was made despite the normal morning cortisol concentration since there was loss of the diurnal rhythm of plasma cortisol and a lack of suppression on 4 mg. a day of dexamethasone. However, no treatment was undertaken at that time, as the condition was considered to be mild.

She was re-admitted routinely in February, 1968 for assessment. The results of the clinical investigations made at this time were:

- 9 a.m. plasma cortisol and A.C.T.H.: normal.
- Diurnal rhythm of plasma cortisol and A.C.T.H.: absent.
- Response to i.m. synacthen: normal.
- Insulin tolerance test: poor response.
- Dexamethasone suppression test: resistant.
- Urinary corticosteroid response to metyrapone: marked response.
- Plasma A.C.T.H.: elevated.

These results confirmed the diagnosis of Cushing's disease.

CASE HISTORIES

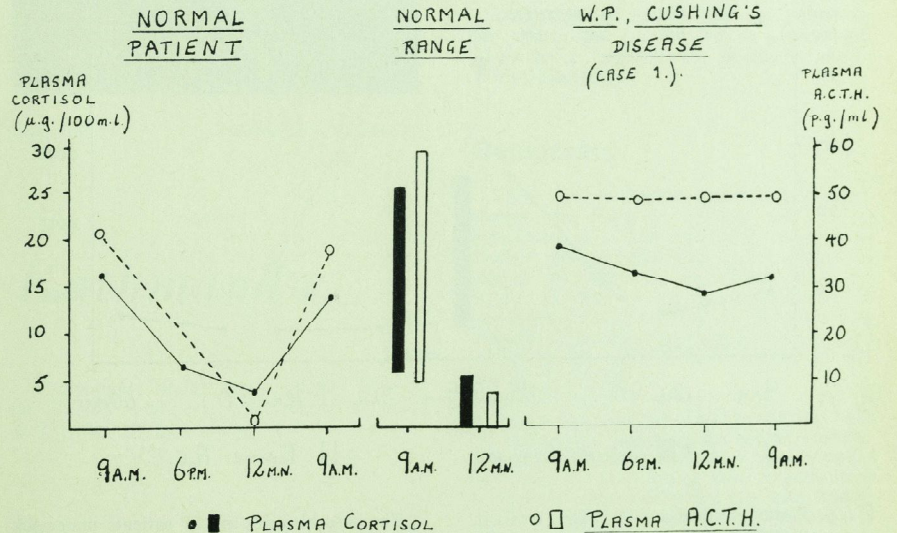


Fig. 1 Plasma cortisol and A.C.T.H. levels in a normal patient and one with pituitary dependant Cushing's disease (W.P.).

The loss of the normal diurnal rhythm in Cushing's disease is shown. 1 picogm. = 1×10^{-12} gm.

case 2

First presented in 1937 with quadrantic hemianopia and left sided weakness, and was operated on for a supracellar cyst. However, his sight continued to deteriorate, and by 1944 he was completely blind.

He was admitted to Bart's in March 1968 when a diagnosis of panhypopituitarism secondary to a craniopharyngioma was made. The results of the clinical investigations at this time were:

- Response to i.m. synacthen: normal.
 - Insulin tolerance test: no response.
 - Urinary corticosteroid response to metyrapone: absent.
 - Plasma cortisol response to lysine vasopressin: normal.
- The patient responded well to replacement

therapy and at the time of discharge was taking:

- Cortison acetate—12.5 mg. t.d.s.
- Thyroxine—0.1 mg./day.

case 3

Presented with a two year history of weight loss, nausea, vomiting and vague upper abdominal pain; one year ago she had noticed unusual pigmentation on the extensor surfaces of the palms of the hands, and on the elbows and knees.

Clinical investigations:

Response to i.m. synacthen: absent.

Thus a diagnosis of Addison's disease was made and the patient showed a dramatic response to hydrocortisone and flurocortisone therapy.

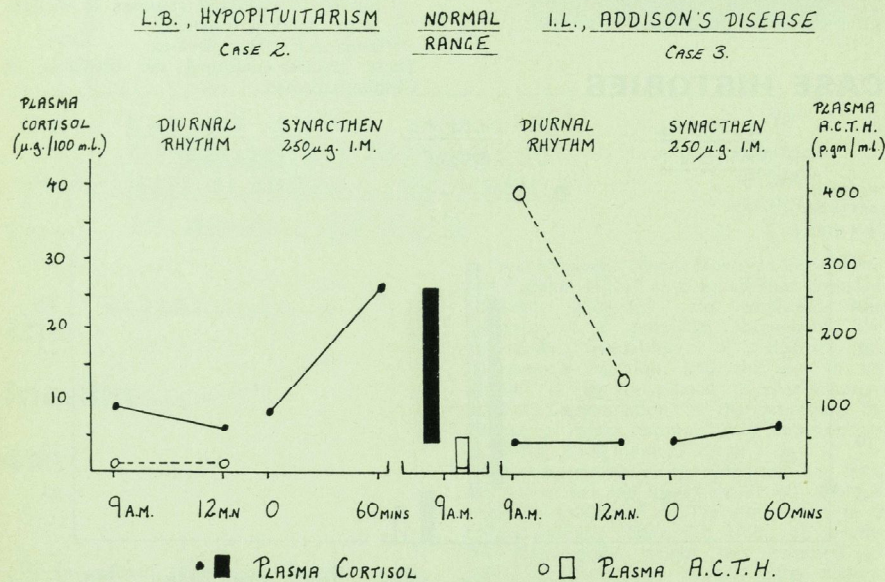
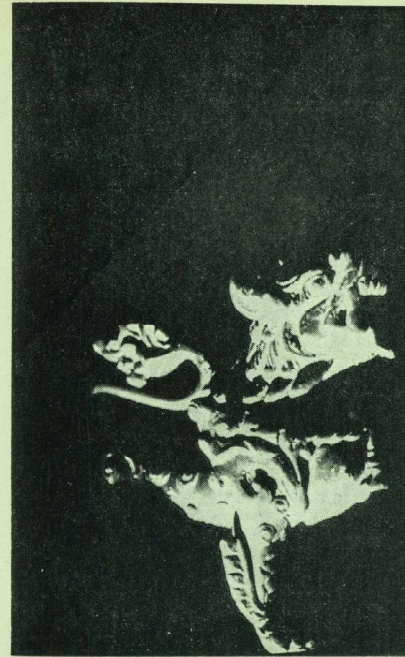


Fig. 2 Plasma cortisol and A.C.T.H. levels in a patient with hypopituitarism (L.B.) and one with Addison's Disease (I.L.). The diurnal rhythm and response to synthetic A.C.T.H. are shown.

The case histories are of patients under the care of Prof. E. F. Scowen.

Plasma A.C.T.H. estimations by courtesy of Professor J. Landen. Plasma cortisol estimations by courtesy of Dr. G. M. Besser.



Brass Dragon

Photo by A. F. Cornelius

Kathmandu is a city of the gods. High in the mountains of Nepal, protected from Red China by the massive Himalayas, it exists as a shrine to religion. Temples and pagodas reach everywhere towards the sky, the prayer bells are rarely silent, and refugee Tibetan monks walk with sad faces, dreaming of their forgotten people.

Beatniks

Beatniks from the West in wild clothing and unkempt hair beg for food and shelter, sit around meditating, and wonder why it is becoming increasingly difficult for them to renew their visas.

Intricate carvings detail the wooden buildings. Brass curios fill the little shops. Supposedly from Tibet, these relics can fetch high prices, but the genuine ones are filtered out for world markets.

Hash

Drug traffic is legal. Hash may be sold in the street. The Tibetan Blue is a good beat haunt for a "smoke". The quality is low by world standards.

Democracy

There are two English language daily newspapers, the Nepalese however are new to democracy, as is demonstrated by their parliamentary debates. Not long ago the ministers argued all night on an educational issue, finally decided to set up a committee to investigate the matter; and at this point they discovered that they had argued the same point a few months before; that a committee was already in existence.

Kathmandu is now open to the world. It has an airport. Ten years ago a road was built between it and India, which, despite frequent landslides in the rainy season, is open throughout the year. The Chinese have recently built a "tourist" road linking the city with Lhasa; the only thing that worries the Nepalese is that all the bridges are strong enough to take the largest tanks.

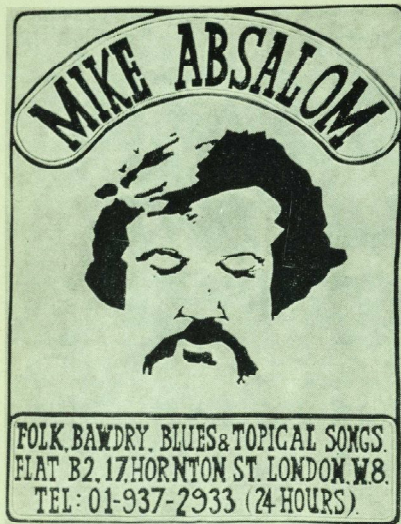
Kathmandu lives now. Its future is too uncertain.

Kathmandu

Kathmandu: mystic city of Nepal. Here is an account from one who journeyed there during the long hot summer of 1967.

by

Andrew Fletcher



Poster reproduction by A. F. Cornelius

holy ground

Mike Absalom left Oxford with a degree in Arabic and Persian and finally took up folk singing. Jim Drynan went along to The Holy Ground to talk to him.

by Jim Drynan

Find it beneath the Catholic Church of our Lady of Heaven, Queensway. The entrance a hole in the ground down which a queue of people is disappearing underground. Above this are a pair of double doors, one signed "Exit Only" the other "No Entrance," you can't get in the back way to this church.

Premises are the community hall of the church, it splits the profit fifty-fifty with Mike Absalom who runs the club.

Once inside, an achievement which is almost as difficult as it first appears, there's the Holy Ground (sic).

A semi-circular room with a raised stage in the centre, lighting—by Chinese lanterns, decoration by posters and crudely painted murals, a fish net suspended from the ceiling—Sea of Galilee overtones here and some strands of tinsel around the supporting pillars—presumably left over from some bygone Christmas festivities.

Washing

Lavatory facilities—primitive and restricted, would be completely inadequate if beer was served on the premises. If you like washing, wash before you go. Beer is obtained at the Duke of Edinburgh across the road, Watneys; soft drinks and tea, coffee etc. are provided very cheaply by a band of "helpers".

Entertainment very good, provided by resident singers Ronnie Cairnduff and Joanna Wheatley, who has recently joined the "Tinkers", and guest singers booked by Mike "I book big names" Absalom.

Twins

I went to see Mike Absalom the next day. Once again faced with an acute entry problem but finally negotiated the speaking door at the third attempt, to have the door flung open by two very beautiful Swcdish girls, who said they were identical twins.

"Yes", I said.

I'd guessed this one already, it was easy, I'd been looking hard at the problem, since I first came in.

"We're Student nurses", they said.

"Oh yes, I've come to see Mike", I said.

Mike Absalom was out but would be back, so I took a seat and scrounged a cigarette, always following the lines of least resistance.

I was just in the middle of the "Are you a journalist", Sort of—yes", "Which paper do you work for", routine and tying hard to strike a balance between truth and fiction in my replies, when Mike Absalom returned. He'd been buying his supper.

I didn't get up. This proved to be a mistake as I'd have realised earlier that I was sitting on a piece of discarded chewing gum. Identification of its owner proved impossible, after all they were identical twins. Mental note of another reason for buying a new pair of trousers, it had been a bad day, all day, I hoped it was going to change; a bad month for trousers too.

I started talking to Mike, he supervised the making of a jelly for his tea, the other trouble with these girls was they couldn't cook, they hadn't been nurses very long.

I asked him how long he'd been singing, supervising was proving an absorbing job, so he finished out a press handout.



"Mighty" Mike Absalom. Born November 9th 1940 in a Vicarage in Torquay, Devon. Welsh and Irish parentage, hence name Absalom, common in South Wales Bible Belt. Brought up in Devon, Cornwall, Hertfordshire, the Fen Country and Canada. Educated at nine schools, grammar, public and private. Finally at St. Catherine's, Oxford University, graduating in 1962 with an honours degree in Arabic and Persian. Since then has had many jobs in Sweden, Greece, Persia, France, Spain, Turkey, ranging from bodyguard to teacher to illegal liquor seller to mothers-help to dancing partner to tourist boat guide to translator to packer to washer up to street singer and finally to folk entertainer. Writes much of his own material which extends from bawdy through blues to straight folk and social satire. Speaks eight languages with decreasing fluency. Past master of the art of rejuvenating ancient shaggy-dog epics. First L.P. released October 1966, and has been roaming wild ever since.

As you can see this doesn't have the information, it was since November '64.

"Where did you start?"

"In a Greek brothel on Hendra, shouting rugby songs at G.I.'s and all that crap".

I agreed with him.

Bathroom Ballads

"All you needed was a loud voice, which I have, and a facility for shouting four letter words without offending the people you're shouting at.

"How much were you paid?"

"12/6 a week to start with, I lived on it".

"Greece is a cheap place to live".

"25/- later, I must have got better".

"Where did you go from there?"

"A place called Bobby's Bar in Spain".

"Spain?"

"Like Blackpool, I was earning 50 quid a week singing bawdy at one time".

I asked him how he started in Britain on the folk circuit.

"It was 16 months ago I came back, it was very difficult to get in, I'd made a record, an LP 'Mighty Absalom Sings Bathroom Ballads', it's sold 200,500 up to now and that's what people remember me for. I skipped through the early stages by good advertising, I'm a good administrator, I think that's important; I rang up all the colleges in London, I had a great bag of sixpences, I got enough gigs to last me till February, that started me, word got around. I wrote songs and sold them at sixpence a time, people pinned them on their walls instead of throwing them away".

Scots and Irish

"I took over the Holy Ground in May '67. from a friend. It's been good since November. Most folk clubs either pack up or just exist through the Summer. We're doing very well, as you saw last night.

"I suppose it's the biggest folk club in London now. Best known amongst Scots and Irish".

"What's the church's attitude to the club?"
 "No official attitude, they take half the profit, as long as I bring people in and I do, it's okay by them".

Corn

"What do you think people want in folk clubs?"

"Entertainment, rather than good music on the whole. Corn goes down well in folk clubs, you won't find intellectuals in folk clubs, there's nothing that appeals to them. The blues is a different story, I'd like to sing more blues but I don't think it's the right time for me to make a blues record yet".

Record Cast

"How much does it cost you to make a record?"

"An EP, 50 pounds, that's marketing it yourself, I'd rather someone else did it for me later on".

"How much money can you make singing blues?"

"None, you have to be really at the top, when you do make money, I keep my fees low so that folk clubs can afford me. I do the concert circuit and gigs outside London to make money. London fees tend to be lower, there are more singers here. Everyone helps each other along after a gig, talking to the managers, mentioning other names. Folk singers as a whole don't run each other down, except the people at the top, everyone runs them down, they seem to get by".

Protest

"What do you think of protest as such?"

"It's everyone's duty to protest, who's alive".
 "How about in song?"

"All blues are protest songs, it's a subtle way of putting it across. It pushes people off the verge and over".

"You think there's only a certain amount of room on the verge?"

"Yes. I tend to get very emotional and want to shoot people and throw things but I don't because it interferes with my finances too much. I have very definite enemies, drop in at the pub and meet some of them".

"Thanks I've my own already".

Arrested

"I was arrested on Tuesday, belting my fist through someone's door, I'll do anything that makes my name known. In most places you have to be booked on reputation".

"What do you think of folk generally, do you think it's changing at all?"

"No I don't think so, it's varied and has a lot of scope; it's easy to organise in an amateur way. English folk songs seem to me to be the soft mumbblings of a serf, suppressed very heavily and for a long time. Irish have more life and more music.

"How do you see yourself in this as a performer?"

"You must entertain first, you're being paid, you're a professional. When you're really good, you can make people take what you want to give them; of course you need talent, by that I mean the ability to absorb what you experience around you".

Oxford

"What did you think of Oxford?"

"A load of crap, — —."

"What was your degree?"

"A fourth. I was a scholar, I suppose they thought they had to make the system hold up. I was very young, it was just at the end of National Service and everyone was much older".

Nationals

"What instruments do you use in your performances?"

"Guitar, I have several, double bass, banjolele—I've two Nationals".

"Nationals?"

"They were the forerunners of the electric guitar, the firm went bust just before the war when electric guitars came in. You don't see many around any more".

Students

"What sort of people do you get at the Holy Ground?"

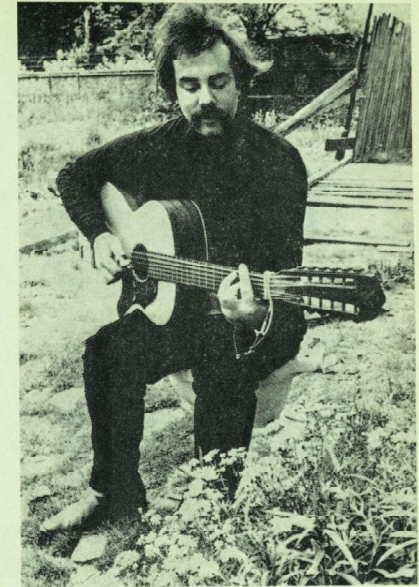
"Students from the Hostels round here, a lot of nurses, I suppose it's usually about 80% girls, it was exceptional the night you were there. I think they like it because it's not boozy, but there's always the pub across the road".

Science Fiction

"How do you see your future or what in?"

"There are so many currents, commercial, creative and popularity, you have to balance them all. Later on I want to write Science Fiction".

As I went out an Indian called out, "Do you mean television", perhaps he'd caught me threatening the speaking door lock. I started for the television set, then regrettably he realised that I wasn't from the television company after all. Still the day was looking up.



Mike Absalom



FOOTNOTE

The Holy Ground, 4a Inverness Place, Bayswater, W.2.
 September 4th The Halliard.
 September 11th The Leesiders.
 September 18th The Orange Blossom Sound.
 September 25th Jill Darby—Don Shepherd.
 October 2nd Noel Murphy.

Cheap rates for parties by prior arrangement with Mike Absalom. Should you be interested in booking Mike Absalom his address is below.

Flat B2,
 17 Hornton Street,
 London, W.8.
 Tel.: 01-937 2933.

When it comes to
good beer, we make the
choice difficult.



Whitbread Pale Ale Clear Bright and Refreshing.
Final Selection Extra Strong Ale.
Forest Brown Smooth as Velvet.
Mackeson It does you a bit of good.

Whitbread for choice



ANNOUNCEMENTS

Teaching Committee

The teaching Committee is a sub-committee of the Student's Union, whose aims are to collect and represent the views of medical undergraduates and pre-registration housemen on medical education. This committee met with members of the consultant staff in March; at this time the view was expressed that regular meeting of this type should take place. Committee members are anxious to receive the views of students and others, especially on the Todd Committee report; these may be handed to A. J. Newman-Taylor.

Engagements

BATES—MENNEER—The engagement is announced between Dr. Tom Bates and Miss Jean Menneer.
BROWNE—REIDY The engagement is announced between Dr. Robin Browne and Miss Kathleen Reidy.

Births

GRANT—On March 27, to Shirley (née Glyn Williams) and Dr. Travers Grant, a son (Andrew).

Deaths

DALE—On July 23, Sir Henry Hallett Dale, O.M., G.B.E., F.R.S., aged 93. Qualified 1909.
FIDDIAN—On July 20, Dr. Eric Alfred Fiddian, M.D., D.P.H., aged 75. Qualified 1922.
WHITE—On July 20, Dr. Stanley White, M.R.C.S., L.R.C.P. Qualified 1920.

Change of Address

The new address of Sir Selwyn Selwyn-Clarke, K.B.E., C.M.G., M.C., M.D., F.R.C.P., is—3 Stirling Mansions, Canfield Gardens, London, N.W.6.

Dr. and Mrs. E. T. C. Spooner's new address is—Yew Trees, Church Road, Great Bookham, Surrey.

The new telephone number of Dr. J. A. W. Robertson is—021-705 6642.

Appointments Birmingham University

Dr. H. V. Morgan, C.B.E., F.R.C.P., has had the title of honorary professor of medicine of the tropics in the department of medicine conferred upon him.

Royal College of Surgeons of England

At the meeting of the council held on June 13, Diplomas of Fellowship were granted to the following:—

CHALLIS, John Howard.
DUDLEY, Nicholas Eric.
DUNN, David Christy.
FISHER, James Robert Holdrich.
HOARE, Edmund Martin.
PERRY, Philip Michael.
*THOMAS, Alfred Keith.

*In otolaryngology.

The Boat Club is Holding it's 125th Anniversary Dinner

on

Friday, November 22nd 1968

and All Old Members are Invited to Attend



The Casualty Officer's life-line is the letter to the G. P.

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reviews

by
Clive Froggatt

Gaddum's Pharmacology Sixth Edition, revised by A. S. V. Burgen and J. F. Mitchell. Oxford University Press. 35s. 234 pp.

This latest edition of what is now a standard medical textbook has been entirely re-written by the Revisors. They themselves admit that they have been unable to reproduce the "very personal style" of the late Sir John Gaddum, and I do feel that the change in style of this book is certainly not an improvement.

The Sixth Edition has less chapters than previous editions and the result of this change does seem to be a more systematic approach to Pharmacology with each chapter having a more logical sequence.

The actual bulk of the book has been reduced by roughly a third and this, combined with the new format has greatly stream-lined the look of the publication. However, the new format adopted means that there are now almost double the number of words on each page and this has indubitably made the book less easy to read.

The chemical structure of many of the drugs discussed has been emphasised in this issue to

a greater degree than in previous issues but I would question the usefulness of these new inclusions since from what I remember of 2nd M.B. Pharmacology the chemical structures of the most common drugs were hard enough to remember!

Whilst, of course, conceding that books on subjects such as Pharmacology are subject to constant revision I find this particular attempt disappointing; however, this new Edition has much to commend it, and I am in little doubt that it will continue to be a most useful and popular book.

Clive Froggatt.

La Chamade, Francoise Sagan. Penguin 4s.

Francoise Sagan is well known for her best-selling book *Bonjour Tristesse* written in Paris when she was only 18. In this book, first published three years ago, she examines the complex interrelations in the artificial atmosphere maintained by an ageing Parisian clique. Lucile, the young mistress whom a devoted Charles manages to keep faithful, suddenly falls into bed and love with the young gigolo of the wealthy leader of the social scene. Mademoiselle Sagan captures the passion and the lightness of the lovers and the concealed hurt and anxiousness of the onlookers who can only watch and hope that the drum doesn't sound for their defeat: enjoying light reading for the end of the day.

Ronald Knight.

FORUM of the Students' Union

In the middle of September Mr. Rothwell Jackson, the junior warden of College Hall, will be leaving to take up a post in the United States. His term of "overlordship" has been marked by the degree of sympathy he succeeded in establishing between himself and the students, we thank him for this and wish him success in his new job and good luck for the future. He will be succeeded by Mr. MacElwain, whom we welcome.

An unexpected result occurred when, in the wake of the second M.B. party, the porter's "sentry box" at the back gate of the Medical College got overturned and partially destroyed. It has now been decided to refurbish this "cubby hole" to the extent of neatening and carpeting it. Let us hope that at last a use has been found for destructive vandalism

The College Hall squash courts are being replastered. This is a long and expensive process involving much skilled work, in order to produce a "finish" of the high standard required. It is felt that the large cracks in the surface, which stimulated the need for this replastering may shortly reappear if the collection of rain on the roof of the students union office next to the squash courts is not curbed in some way. For it is felt that seepage from this source is the root cause of the trouble.

Barts gained a conspicuous victory at the United Hospitals Athletics meeting recently. This was in the Tug-of-War. It has been suggested that the winning of this event and the subsequent consumption of the prize, a barrel of beer, would not have been possible without the stout hearted aid of a certain gentleman from the Pharmacology Department. Sir, we salute you.

Elisabeth Macdonald



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Christian Science

Christian Science looms in opposition to medicine. Mistrust and ridicule is the attitude of most doctors. Is this justified? What do these people really believe? We decided to find out.

A Survey by

Justin Blake James,

Paul Dieppe and

Andrew Fletcher



Mary Baker Eddy

© C.S.P.S.

We arrived at Ingersoll House, Kingsway, and took a lift to the sixth floor, where we were ushered over deep carpets and through mysterious doors into the office of Mr. Bryan G. Pope, our informant, who seated us according to rank, and the interview began.

"I want to say straight away that there's no confrontation with medicine".

Essence

What then is the essence of Christian Science? . . . "God and His creation is the ultimate reality. A God who is good cannot create evil. Therefore, in a universe created by a good God evil does not possess valid existence.

"Light and darkness both appear real. Yet only light exists, and darkness is simply the absence of light. Similarly good and evil both appear to exist, but only good really exists, for evil is the absence of good. Just as one

overcomes darkness with light, so the Christian Scientist seeks to overcome evil with good.

"Christian Science interprets disease as one form of evil. Realisation of its basically illusory nature and of health as the normal, God-ordained state of the real spiritual man is the essence of healing.

"Mind you, it takes years of study to understand Christian Science fully, and no Scientist would deny that disease seems very real to the sufferer.

Mary Baker Eddy

Mary Baker Eddy was born in Bow, New Hampshire, in 1821. In 1866, after 45 years of hardship and misfortune, she was dramatically healed of the effects of a serious accident, while reading the Bible (Matthew IX vv. 2-8). In 1875, after intense study to explain her cure, she produced a book entitled "Science and Health". She founded the First Church of

Christ, Scientist, Boston, Massachusetts, in 1879, "designed to commemorate the word and works of our Master, which should reinstate primitive Christianity, and its lost element of healing".

Healing

"Healing is not the be-all and end-all of Christian Science," we were told. "It's the natural effect of gaining an understanding of the true nature of God and man, and living in accord with God's law."

But these people do not ignore disease. There are four Christian Science Nursing Homes in Britain and trained nurses for home visiting. Some of their people are full-time practitioners, the equivalent of our own G.P.s, to advise others in time of illness and give them treatment through prayer.

There is much evidence of miracle cures, although Christian Scientists would not refer to them as such.

Cures

For instance, Mrs. Orion C. Hodden of Albany, Georgia, relates: "My condition was diagnosed as cancer of the oesophagus. The doctor said I would live only a few more months, and told me how sorry he was they could do no more for me.

"After the second visit of a Christian Science practitioner, I was so full of joy and happiness

I couldn't go to sleep. At 4 a.m. I realised I was no longer in pain. Then I slept soundly, and the next day was able to eat whatever I wanted—I hadn't done that in four years. In one week, I was back at work."

Again, from George Fox, Pilot View, Kentucky (July 25, 1901): "I find that animals respond quickly to the Truth. In a few treatments given to horses, I have seen the distemper knot and fistula disappear, and there has been no return."

Medicine

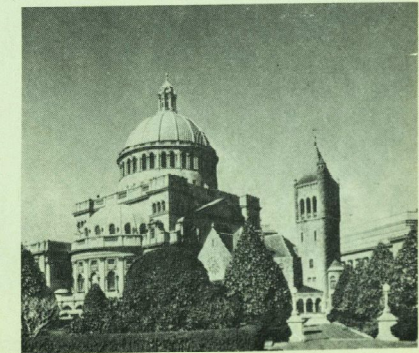
Christian Scientists are not at war with medicine, and they do not censure their members seeking medical advice if their faith is not strong enough. Indeed Mrs. Eddy in "Science and Health" writes:

"Until the advancing age admits the efficacy and supremacy of Mind, it is better for Christian Scientists to leave surgery and the adjustment of broken bones and dislocations to the fingers of a surgeon, while the mental healer confines himself chiefly to mental reconstruction and to the prevention of inflammation."

Library

In two hours we had attempted to absorb the essence of Christian Science. We left with a book ("The Christian Science Way of Life", by DeWitt John) destined for the hospital library, and re-entered the bustle of London.

The First Church of Christ, Scientist, Boston, Massachusetts





DIRTY BARTS

(See Correspondence and Editorial)

Photo by A. F. Cornelius

CORRESPONDENCE

Letters to the Editor that require publication in the next issue MUST reach the editor within 24 hours of publication of this issue.

Student Grants

Sir,—B.M.S.A. is at present pressing for a reappraisal of medical student Grants by the Department of Education and Science in May 1969.

The recently published Brown Committee Report (obtainable from H.M.S.O.) does not do medical students justice. A statement in the

Report to the effect that our evidence suggested that student costs were less than the grants awarded is nonsense.

We have sent letters concerning this matter to Student Presidents and B.M.S.A. reps. in all British Medical Schools, and more information is available from them or on B.M.S.A. notice-Boards. We should be most grateful if you would help us to publicise our campaign.

We are at present continuing negotiations with the D.E.S. and lobbying M.P.s. Our latest plan is the inundate M.P.s with letters from Medical Students, demanding a review of our grants in 1969. We have sent copies of such a letter to the Schools and we are asking all medical students to obtain a copy from their Rep. or President to fill in the name of their own M.P., to sign the letter and to send it off. They may prefer, of course to compose one of their own. We should also like to know the names and addresses of any M.P.s who reply.

Our needs represent a special case. Our policies, held for many years, include (i) abolition of a means tests for Clinical Students, (ii) the breakdown of items within the Grant, (iii) more money for capital expenditure, and (iv) an assessment of our grant as essentially post-graduate students, studying (in most cases) for 48 weeks a year. These are still denied us.

Yours sincerely,

ALISON HILL,
pp. GEOFFREY J. LLOYD,
B.Sc., President.
TOM TREASURE,
Officer Responsible for
Grants and Welfare.

19th July.

Living Fossil

Sir,—The account of Dr. Edwin R. Nye's conversation with the erstwhile Barts registrar now eminent on the American Continent is of great interest (St. B.H.J., July 1968, p. 271).

It is indeed of significance that in the last decade a quiet revolution has taken place in many American medical schools with the replacement on retirement of the omnipotent *part-time* head of departments by a new race of adequately paid *full-time* teachers. It should be noted that many transatlantic University

Departments conduct private practice as Departments, wholly or partly ploughing back the receipts into their individual research funds. Nearer home the London University Medical Schools might look with profit on the interesting developments in medical education taking place at Newcastle-upon-Tyne and elsewhere.

Dare one hope that the comparison to that living-fossil the *Sphenodon* is a little harsh? Even at this late stage might not the *Axolotl* provide a better model? Even an elementary zoologist like the writer knows that this interesting creature can either remain in its tadpole stage quietly reproducing itself or, if stimulated by a little thyroid, it can undergo a metamorphosis into the more advanced salamander-like amphibian *Amblystoma*.

A living example of *evolution* rather than of *fossilisation*!

Your sincerely,
T. B. BOULTON,

Closed Circuit TV

Sir,—The excellent articles by Gasking and Quilliam, and Boulton and Mulvein in this month's *Journal* prompted me to ask whether the best use was being made of closed-circuit television techniques (C.C.T.V.) in the Medical School, especially in view of the expense involved in installing the apparatus, and future development of the system.

I am not referring to television as a local visual aid, e.g. monitoring or radiography, in which situations the system must be designed for the special use in mind.

There are now five departments using incompatible C.C.T.V. equipment in the college and hospital. Surely the time has come when future policy should be under one central control. This is essential for economic production of teaching material, to make efficient use of experienced staff and technicians without duplication of effort, but most importantly, to allow live transmission from one department to any other, which is not possible in the present situation.

Of course it may be best to adopt a policy of "Wait and see," especially in view of the

university and inter-university working parties considering the use of compatible audio-visual teaching apparatus.

Are we going the way of certain other London hospitals, where individual departments' unco-ordinated units have rapidly fallen into disuse?

By the way what has happened to the Path. Department's C.C.T.V.?

Yours faithfully,
W. E. J. LEVERTON,
Abernethian Room.

1st August.

Dirty Barts

Sir,—In consideration of the present facelift being given to wellknown parts of London, might not our hospital see fit to clean itself. The Principal block is far from ugly and once the years of dirt have been washed away the buildings will look most imposing. At least those tourists visiting St. Paul's and Smithfield will be able to read "St. Bartholomew's Hospital" through the years of green rust that at present obscure the rather melancholy sign.

Yours sincerely,
CHRISTOPHER T. N.
NIXON.

Student Reviews

Sir,—We are glad to see that you are continuing to reserve space in your *Journal* for reviews of medical books. Students choosing textbooks have such a vast range of literature from which to choose that guidance is essential. We feel that only experts involved in the rapid advance of medical science can have the perspective necessary to give sound advice.

In the past your policy has been to invite experts to review medical textbooks. Would it be possible to reconsider this policy?

Yours sincerely,
J. F. BURMAN,
J. MACKINNON,

1st August.

The Abernethian Room.

OBITUARY



Sir Henry Dale

O.M., M.D., F.R.C.P.

(1875-1968)

Sir Henry Dale was one of the most illustrious of old Bart's men, if indeed he was not the most illustrious of the Scions of our hospital.

He will be remembered for the imprint which he made upon medical sciences in the first half of the twentieth century. This imprint was the application of scientific experiment, and critical, constructive assessment of experimental results particularly in the fields of pharmacology and physiology. His approach bore a rich harvest in these two sciences, so fundamental to medicine.

Educated

He was educated at Leys School, Cambridge, then at Trinity College, Cambridge, and graduated in medicine at St. Bartholomew's Hospital in 1903. He proceeded to the M.D. in 1909, and gained F.R.C.P. (Lond.) in 1922. After qualifying in medicine he became, for

a year, Sharpey Physiological Scholar at University College, London. There he was influenced by two giants in the world of physiology: W. M. Bayliss and E. H. Starling. No doubt the exciting discoveries taking place in these stimulating circumstances fanned his interest in experimental physiology to fever heat.

Unusual Step

He then took the unusual step of accepting an appointment in a drug firm; but it was an unusual appointment for he became, until 1914, Director of the Wellcome Physiological Research Laboratories. He was persuaded to take this post by Sir Henry Wellcome, the co-founder of Burroughs Wellcome drug firm (now the Wellcome foundation) whose profits finance the Wellcome Trust, which supports a lot of research related to medicine. In this post the young Dale showed his mettle by commencing a programme of research on the pharmacologically active agents in the fungus ergot, then the only known natural source of both acetylcholine and histamine, the saga of the ergot alkaloids is now well known to every medical student.

Between the Wars

Between the wars, he and his colleagues worked on histamine, elucidating its pharmacology and laying the foundations for the development of the anti-histamine group of drugs. His school also provided the experimental proof which established that chemical transmission is the link between peripheral synapses, and between the nerve terminal and the effector cell in what we now know as the cholinergic system.

Nobel Prize

Dale's decisive contributions to research were recognised by the F.R.S. in 1914 and the Nobel Prize in 1936 which he shared with the great Otto Loewi. But it was not only research which engaged his attention: from 1928 to his "retirement" in 1942 he was the director of the National Institute of Medical Research. He inspired workers in Holly Hilly in their many fields of scientific endeavour. He created an English Mecca to which young scientists were

attracted, and their subsequent careers bear testimony to the value of the scientific training which they received from him. In addition, he planned the new National Institute of Medical Research, built just before World War II at Mill Hill. He saw it occupied by the Institute shortly after hostilities ceased, after the last W.R.N.S. vacated it. This Mill Hill Institute with Holly Hill forms a National Memorial to the foresight and planning of Sir Henry Dale. Indeed his services were recognised by a knighthood in 1932, and G.B.E. in 1943.

Pharmacologists and physiologists remember Dale as the personality at their learned society meetings who abhorred imprecise statements,

wooly argument, and outrageous speculation. He went out of his way to encourage young workers, and at the same time guide them in their work when they gave communications or demonstrations to our societies.

Retirement

After his "retirement", he devoted even more energy to serving science. He was president of the Royal Society (1940-5), a member of the Medical Research Council (1942-46). He was chairman of the Wellcome Trust from 1936 to



CAMBRIDGE UNIVERSITY NATURAL SCIENCE CLUB (1898)

Rows (Left to Right)

Top Ernest Rutherford J. W. C. Kirk H. H. W. Pearson G. S. Phillpotts
 2nd W. M. Fletcher J. Talbot J. R. Eccles A. W. Hill F. Gayner W. H. Mills R. C. Punnett
 3rd J. G. Kerr C. F. Hadfield F. P. Bedford H. H. Dale J. S. Budgett
 Hon. N. C. Rothschild Hon. R. J. Strutt (later the 4th Lord Rayleigh)
 Front E. B. H. Wade H. W. Atkinson L. Doncaster

1960, and travelled to many parts of the world after the last war to supervise the allocation of the Trust's moneys to research activities. There must be few countries which have not received financial help from the Trust to forward their medical research.

Sparkling Intellect

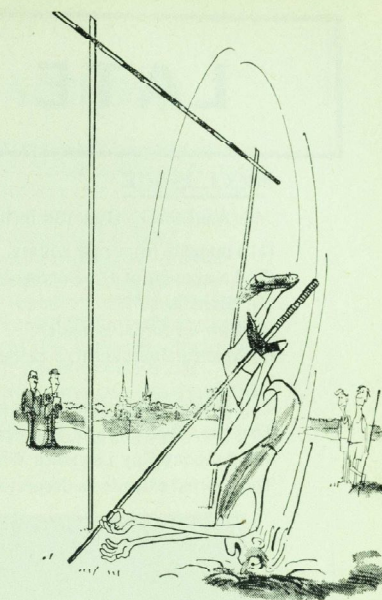
Sir Henry Dale attended a dinner in Cambridge, given by the British Pharmacological Society in 1967, to receive from the hands of the President of the German Pharmacological Society the coveted Schmiedeberg Medal, struck in memory of the Father of Pharmacology. This honour visibly moved Sir Henry, who had had a deep regard for German Pharmacology ever since his contact with Ehrlich. Although physically incapacitated, Sir Henry's voice rang clear to his 400 guests, as he gave his thanks to the German Society for the honour. He talked of Pharmacology in the 1905-1914 era, and said how pleased he was that "young Barn" (one time Professor of Pharmacology at Oxford) had also received a Schmiedeberg Medal. With characteristic modesty he said that it was nice for an old ornament to be taken down from the shelf, dusted down, and brought out to see the pharmacologists of the day. Even at 92 his intellect was sparkling, and his grasp of current research as keen as ever it had been.

We in the University recall him as the Guest of Honour at the Dinner to Visiting University Special Lecturers in Pharmacology, at which, as the port circulated, we were able from Sir Henry's words to recapture the excitement of those early days of pharmacology.

Memorial

Sir Henry always had a soft spot for his old hospital. His interest showed in many ways. He knew the areas in which help was needed, and research at Barts has received financial aid through the good offices of Sir Henry as a member of the Wellcome Trust. The Research Library, and the books in the Pharmacology Research Library, were provided by the trust. Our most prized possession is the run of the *Journal of Pharmacology and Therapeutics* which Sir Henry passed in 1957 to the Pharmacology Research Library. It is a memorial to that Son of Barts, who did so much for Pharmacology and the medical sciences; a memorial which he chose for himself, a memorial which is functional and useful, and serves to remind future generations of a great man's veneration of his old hospital.

J.P.Q.



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LATE NEWS

NEXT ISSUE

75th Anniversary Issue will include:

- (1) Thoughts from past editors, including Richard Gordon.
- (2) An account of Dr. Borchers, the Journal's first editor.
- (3) "Barts in 1893"
- (4) How a Journal is made.
- (5) Medical Journalism: a career?

Two Bart's students have been killed in Road Traffic Accidents. They are: Robert Nigel Wilmshurst-Smith (on August 6th), and Anthony Guy Lawrence Wingfield (on August 9th). The Journal extends its deepest sympathy to relatives and friends.

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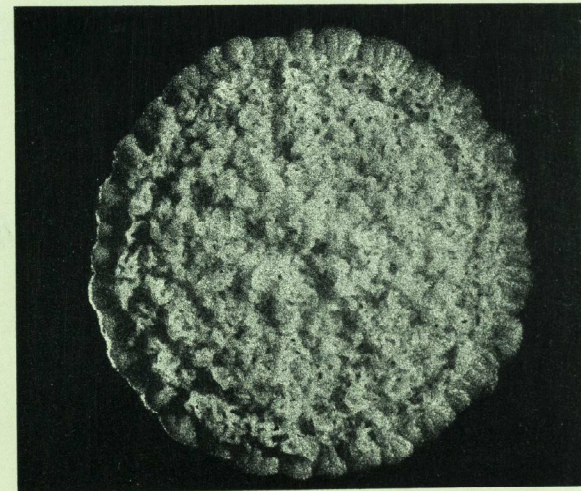
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From sewer to surgery

A sample of sewage outfall formed the starting point for the antibiotic cephaloridine. In 1945 an Italian scientist Professor Brotzu first discovered antibiotic activity in a culture of the cephalosporium mould. Investigations showed the mould could produce a number of antibiotics but the most promising, cephalosporin-C, was only produced in small quantities. Glaxo's antibiotic production resources were enlisted and over three years their research staff improved the yield. Glaxo chemists then prepared 600 modifications of the cephalosporin-C nucleus and the antibiotic designated '87/4' was shown to be the best. It became known as cephaloridine (Ceporin). Clinical trials and use have proved it to be exceptionally broad-spectrum, bactericidal and well tolerated even by penicillin-hypersensitive patients.



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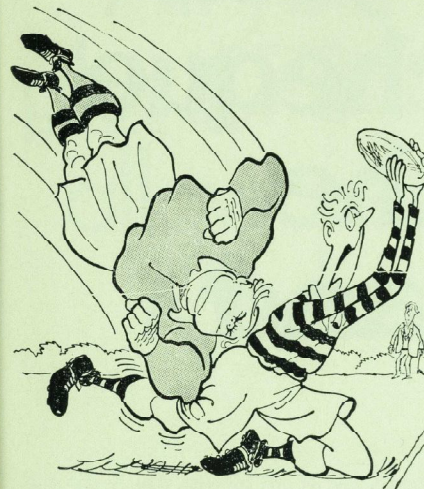
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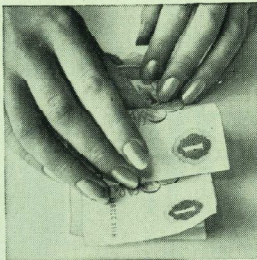
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For further information about Medical Cadetships, or to arrange a meeting with an RAMC Officer to answer any questions you may have, write to: Colonel E. L. O. Hood MS, Ministry of Defence (AMD2), Dept. 073, Lansdowne House, Berkeley Sq., London W1

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—Medical Journal of Australia

St. Bartholomew's Hospital Journal

75th ANNIVERSARY ISSUE

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journal staff

Editor: **Andrew Fletcher**

Assistant Editors: **Clive Froggatt, Ronald Knight**

News Correspondent: **Jim Drynan**

Photographic Correspondent: **Julian Toms**

Charterhouse Correspondent: **Malcolm Fletcher**

Nurses' Representative: **Margaret Lightfoot**

Manager: **Colin Hugh**

Advertisement Manager: **Robin Rayner**

Subscriptions Manager: **Paul Dieppe**

Accounts Manager: **Peter Munden**

Clinical Correspondent: **Anthony Newman-Taylor**

medical journalism: a career?

Doctors can make good writers. History abounds with names, such as Arnold Bennet, Conan Doyle, and Somerset Maugham.

Commercial journalism may seem foreign to most medical men. But in an age of communication, doctors must not be left speechless.

We examine four publications: two medical journals and two daily newspapers. Whether or not we become involved, we must understand how these media work.

Don't Write this off . . .

by Jim Drynan

What is medicine? How should it be publicised? Jim Drynan investigates.

"IKE REFUSES HEART SWAP"—ran a banner headline in an evening paper recently, it was guaranteed to get people to buy it, the public ever greedy for news from the medical front were about to get it.

But is this news? Is this legitimate coverage? It's sensationalism sucked from a great pool of emotional hysteria, the public takes much interest and gets a lot of vicarious pleasure out of other peoples illness. This is very reasonable, it's much preferable to having the disease yourself. Since lay readers are largely uninformed, any article tends to be sensational first, with informative qualities coming somewhere in second place. Such articles are and are bound to be misleading. It is an easy extension of such thinking for everyone to regard themselves as candidates for an organ transplant. Whatever you may feel about the ethics of organ transplantation, practically it's not on for every one.

highly charged

Longmore, dynamic physiologist, makes another lightning dash across London, blue lights flashing around him, klaxons going, jack-booted outriders and all: the papers haven't a story to start with, it's just emotion filled in with waffle such as pictures of policemen running into the National Heart Hospital (it's in Westmoreland Street, if you've managed to escape the fact), carrying bottles of what could to all intents and purposes be normal saline and pictures of Longmore.

From a medical point of view there's nothing in the story at all, just a minimum amount of information, highly charged emotively. Should you go for this sort of publicity, as it has been argued some people do, you must be prepared to get anything back. Private Eye featured a front page:—

"One Heart—No Bid—Two Spades"
"O.K., so we goofed say heart men"

rave publicity

This is obviously damaging, but without the appearance of the "rave" publicity beforehand in the press this could not have been written. It's just as informative, if not more so than the

previous news reports; just someone once said that you didn't take the rise out of doctors and you only played up the successes.

Professionally, the technique and the monitoring of systems are of interest and are what people want to know, there's a wide variety of publications that may help you out here.

The Medical News and Medical Tribune are published weekly and tend to go in for the "hot-news" style of reportage. It sometimes seems as if they're a medical supplement to a national paper.

B. M. J.

B.M.J., also a weekly, holds a very wide front, seen by the editorial staff as keeping the practitioner in touch; Dr. Thwaites, the co-editor does some of this through the correspondence column, which he sees as an important part of maintaining direct contact. On the other side, informative articles with leaders, papers, editorial, list of jobs, etc. A large journal with a reputation for reliability and accuracy, sets out to do a lot especially for a weekly.

Hospital Medicine

Hospital Medicine—a new journal—tries to be mainly informative with the best articles written by key men in whatever field; brains are picked by the editorial staff, Hospital Medicine is the result. A fresher approach than any other journal and a more direct one.

The Lancet of course—a lot of papers.

Then there are other publications, World Medicine, the Vogue of the consulting rooms, you can't help feeling what a good chap you are or are going to be after reading this one; Pulse, largely for G.P.'s, perhaps too flippant for some tastes. Medical Digest, again for G.P.'s, and the Society journals.

In the presentation of material, selection is obviously of paramount importance; if an article is boring or badly written, the author might just have saved his efforts since it's not going to be read.

There is no reason why serious journalism should not include an element of humour and this in the material rather than interspersing cartoons on every other page. Anything that leads to readability is desirable. Should you have anything to write it's also of course, a way of spreading your name around the place. Dr. Westerman of Hospital Medicine, sees it as heartening that middle and senior grade registrars, who wrote in the past, now occupy chairs and consultant posts.

This, in a sense, is achieving what is the main aim of any journal, that of promoting better treatment for Mrs. X whether this is by being informative or helping people to jobs, is not important.

This sort of Journalism as a career?—you'll find it difficult—there's not much room, so says Martin Ware, the editor of B.M.J., but he was an editor of the Bart's Journal, Michael Hession wasn't, he started his own, Hospital Medicine. This is an established success, with a circulation of 32,000; but the chances are that you don't have an idea for another one and are prepared to start from scratch.

experience

Experience is a great asset, both Westerman and Ware agree, as Ware pointed out, you can't expect to talk to any authority in any field knowing nothing about the subject and come away with a relevant article, it can't be done.

Therefore, getting a few drinks in down at El Vino's is unlikely to do you much good, grubby rain—coat or not. The more jobs the better before thinking along these lines, get into the habit of asking the right questions and getting the right answers.

of the best

Since, it is largely through journalism that medicine communicates within itself and with the rest of the world, it is important that it should be of the best. There is no place for boring scientific articles, they hamper communication, encourage disinterest and have no future.

The Daily Telegraph

by
Clive Froggatt

The Daily Telegraph sells nearly 1½ million copies per day. It is famed for its enormous news coverage.



Character

Every paper has its own particular character, a character which is the product of the Editor—Proprietor liaison, and “The Daily Telegraph” is no exception. Every item of news is submitted to the sub-editors who all express each item in such a way as to give a certain continuity of character to the paper. To explain its production, “The Daily Telegraph”, may be divided into four categories; photographs, advertisements, pictures and news.

Advertisements and Features

The advertisements and features of the paper are all prepared well in advance of the deadline. They follow much the same pattern of going to press as any other newsprint; typing, checking, setting, checking, plating, checking and so to press.

Photographs

When a photograph is selected for publication, it is itself first “photographed” through a wire mesh, and a light sensitive sheet of metal is exposed. The exposed surfaces of the metal sheet are then differentially susceptible to acid corrosion thus forming an etching of photograph which is then ready for use as a printing plate.

News

If an item of news is of sufficient merit, then from the time of its receipt, until it is in print, can be as little as thirty minutes. In “The Daily Telegraph” every item of news that is given to the sub-editors comes from the Tape Room.

Tape Room

The Tape Room is a small room on the 1st Floor of the Administrative Block in Fleet

Street. It has a dozen or so ticker-tape machines around the walls, working continuously, a large table in the centre and a staff of six. The floors are dirty and covered with discarded tape reports thus giving an *initial* impression of total disorganisation. This room is amongst the most important in the building. The tape machines are in constant contact with many press agencies, the most important being the Press Association and Reuters, as well as being in contact with the paper’s own correspondents at home and abroad. The disadvantage of having so many tape machines is that inevitably most news is multiplied and the chief sorter, therefore, ultimately discards more than 90 per cent of the material received. The chief sorter is responsible for selection of the source of the news, which, in the first instance, will be the paper’s own correspondents, since any news printed from the press agency source has to be paid for. From the sub-editors, news passes to the Linotype Room.

Linotype Room

The items of news having been written are then made in blocks of column width called Takes, a print of each Take is made and the Readers then check it. Linotyping is the process of setting out the lines of type for printing. This is done on a “Typewriter Principle”. The letters and spaces of one line are set up by striking the appropriate key, and a lead alloy mould is taken of that line. The lines are then collected and the *Take* is made. When the Takes have been completed it is the job of the Compositor to lay out the page—referred to as the Compositor’s Stone, consisting of all articles, photographs, advertisements, captions and headings; the captions and headings being produced separately.

The Foundry

The page is flat at this stage but a curved plate is required to speed the printing process and this conversion from flat to curve is the next part of the procedure. First of all the Compositor’s Stone is used to form an imprint in a papier-mâché matrix. This is then used as a mould for the final production of the lead

alloy plate in the Foundry. The nature of the matrix facilitates the making of a curved plate. The papier-mâché moulds are used to make thirty plates for printing. The plates are still very hot when they are first trimmed roughly by hand, and then precision trimming is carried out mechanically, the plates are then cooled. (It was very hot in the Foundry, and apparently the cooler is also very useful for keeping the men’s milk cold).

Printed Article

The news is finally ready to be printed. Canadian paper is used, some 125 miles being used daily on the four editions of “The Daily Telegraph” (a fifth at times of particular news interest). The first editions, printed at 10.30 p.m. are sent direct to ports, stations and air terminals for despatch further abroad; the final additions, printed at 4.30 a.m., being sold in London.

Daily Mirror

research by
Paul Dieppe
and
Andrew Fletcher

The Daily Mirror has the biggest circulation of any daily newspaper in Britain. Distribution of this vast quantity of newsprint is a formidable task.



The Daily Mirror is indeed popular. It sells five million copies each day. Four million come from London, and one million from Manchester; the two cities are linked by telex machines for instantaneous reduplication of news and features.

The large building overlooking Holborn was opened by Cecil Harnsworth King on March 7th, 1961, and supplies some interesting statistics. It is 169 feet high, and occupies seven million cubic feet of airspace. This is apparently the equivalent of 500 three-bedroomed houses. Each floor bears an impressive note on the maximum weight it must bear. 150 pounds per square foot: London Buildings Constructional Bye-laws, 1952.

The newsroom is amazingly quiet. Men sit around typing, smoking, talking. No rush is

detectable, yet everyone is working to a strict deadline. Each minute that a main-line train is delayed waiting for newsprint costs a fabulous amount. Trains are rarely delayed.

A lawyer is employed full-time to the Night Editor. A huge reference library supplies reporters with accurate background information. Teleprinters bring the news chattering in from Reuter, Associated Press, and other news agencies. Slowly the main news stories are assembled.

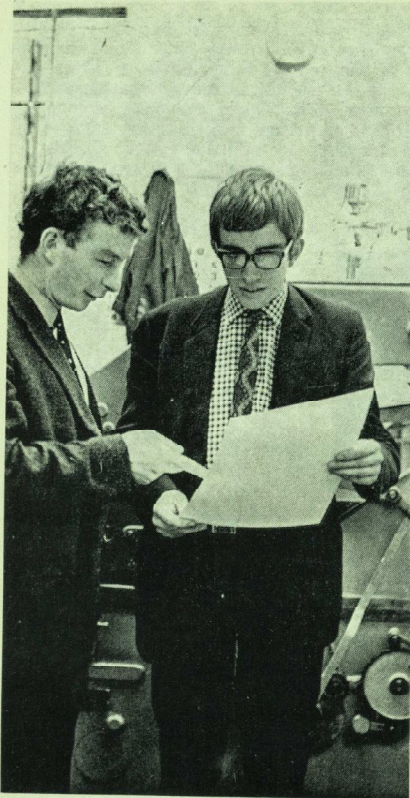
Five editions appear each morning. Each edition is different, sometimes radically so.

Once the copy and layout is finalised, the matter is rushed to the type-setting department, where it is set up as print, proof-read, and moulds taken for the rotary presses.

The building in Holborn has 18 presses. Each can produce 40,000 newspapers per hour. The effect is awe-inspiring as miles of paper rush between huge rollers, are twisted, bent, cut, and assembled instantaneously into multiple copies of newsprint.

The completed papers are fed onto conveyor belts, packed into bundles, and loaded into waiting vans which hurtle into the night, bound for railways stations or the local news stand.

Speed is the essence of newspaper production. News goes stale very fast.



how
a Journal
is made

1. COPY DEADLINE

All articles and matter must be received **TYPED** by this time. A Publications Committee discusses all articles submitted. All matter is carefully checked for mistakes, special instructions added, and sent to Press.



2. GALLEY PROOFS RETURN

The galley proofs are long lines of newsprint. These are double-checked for errors. Authors receive copies of their articles, and their corrections are added as necessary to those already there. **NOTE:** authors have a horrifying habit of changing their ideas when they appear in print. Changes are very expensive. Proofs are for correcting **PRINTING** errors, not errors of expression.

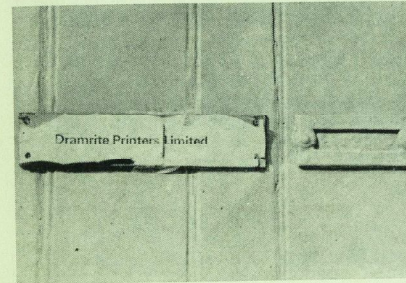


3. LAY OUT

A long week-end is devoted to pasting sections of the galley proofs on to page lay-out sheets, adding instructions for headings, and deciding on the size, and positioning of illustrations. Each journal is normally 48 pages long (including advertising space), and each page must be accounted for. The page lay-out sheets are returned to Press, along with all the galley corrections. All illustrations are sent to the blockmakers with full instructions.

4. PAGE PROOFS RETURN

Page proofs are checked to see that headings are correct, that each section of print follows the next, and that lines have not been missed out or repeated. Proofs of the illustrations are pasted onto the page proofs to indicate to the printers where each one is supposed to go.



way in

5. LATE NEWS

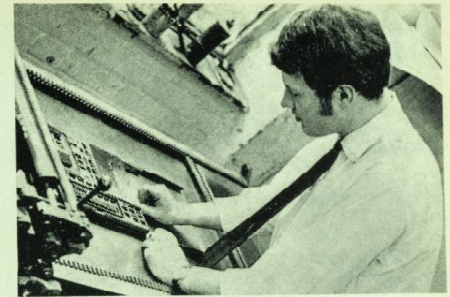
Late items for "Late News" must be got to Press. The colour and heading of the cover must be decided upon.



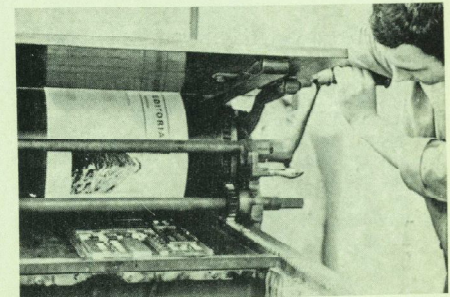
no, this way

6. PUBLISHING

Completed copies of the journal arrive from Press and are distributed. Meanwhile the next copy deadline has arrived. A monthly journal is a continuous task.



set up



roll off



print

sports editorial

success

Amateur sport has one objective—to be enjoyed. This can only be achieved by success and off the field social activities.

Not only do players enjoy a successful match but they gain in confidence and exuberance and so play better and hence have more success.

support

The presence of spectators boosts the ego and one plays as well as possible in order to impress them. That success brings support was well seen last year as the Rugby Club progressed in the U.H. Cup—most of the hospital journeying to Richmond Athletic Ground even in the rain. Success also increases the prestige rating of the Hospital and for this reason alone sport should be *actively* patronised by the senior staff of the hospital.

sons

How can we ensure more success?

Firstly by adventurous admission's policy. That many Bart's entrants are sons of old Bart's men should ensure a steady supply of sporting talent.

"sportsmen"

Enjoyable fixtures against sporting and social teams should be arranged as friendlies. Enthusiasm by players and particularly officials of clubs and good fixtures might stimulate the large number of entrant "sportsmen" who hang their boots up on reaching Bart's to turn out regularly. The key word is regularly as it is only in this way that a good team spirit and style of play can be built up by the *team*.

social

The social aspect of the games we play has not been fully enjoyed. On too many occasions everyone goes home after a cup of tea and a pint and often the members of the opposing team are not even spoken to, let alone entertained. The piano at Chislehurst was only used by two or three soccer players last year and it was only the hockey club that gave us a few rousing songs. Does it take the state of inebriation achieved only on tour for Bart's men to be sociable and enjoy themselves?

sports club

A liaison between clubs at a social level might be achieved by the type of club enjoyed by Oxford and Cambridge colleges which consist of Captains, Fixture Secretaries and players with colours in two years. Such clubs hold cocktail parties and other social activities at which sportsmen at the college can meet each other and discuss college sport generally.

spectate

Early availability of fixture lists would enable players to plan their social lives accordingly and a realisation that we can't play forever and will finally *have* to spectate should deter those who make themselves unavailable for selection because United are in town.

seduce

It is easy for apathy and lethargy to infiltrate the sportsman's mind and seduce him away from the sports field. Only by increased energy and enthusiasm of *all* concerned can we prevent this.

75th Anniversary Supplement

editors 1893-1968

1893 W. M. Borchers
1894 H. B. Meakin
1897 W. Langdon Brown
1899 T. J. Horder
1901 J. A. Nixon
1902 F. A. Bainbridge
1903 E. Talbot
1904 A. H. Hogarth
1906 N. G. Horner
1907 H. Pritchard
1908 K. Pretty
1909 R. B. Price
1910 B. Biggar
1911 A. Abrahams
1912 F. G. Chandler
1913 A. F. Sladden
1913 A. B. Pavey Smith
1913 E. G. Bonsfield
1918 J. S. White
1921 H. L. Sackett
1924 R. Bolton
1926 D. V. Hubble
1926 F. C. Roles
1929 A. A. Miles
1931 W. S. Baxter

1932 J. M. Jackson
1934 D. W. Moynagh
1936 G. Blackburn
1937 M. Ware
1939 R. H. L. Cohen
1939 R. S. Henderson
1940 E. Grey Turner
1941 A. G. Leacock
1942 C. E. Wells
1942 R. J. Harrison
1943 P. R. Westall
1944 G. Ostlere
1945 P. J. Banks
1945 H. W. Cornford
1946 L. E. McGee
1947 M. J. Linnett
1947 J. M. Hodson
1948 A. D. Munro-Faure
1949 J. M. L. Gilks
1949 G. C. R. Morris
1950 M. Baimbridge
1950 J. A. Williams
1951 M. B. McKerrow
1951 A. N. Griffith
1952 G. F. B. Birdwood
1952 I. H. Backhouse
1953 S. P. Lock
1953 R. E. Nottidge
1954 G. Edwards
1954 A. G. Snart
1955 A. J. Salisbury
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1956 J. T. Silverstone
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1957 J. K. Chong
1958 M. J. L. Patterson
1958 J. Millward
1959 J. D. Scobie
1959 P. J. Watkins
1960 A. B. J. Missen
1960 H. White
1961 J. Spivey
1961 A. M. Pollock
1962 D. M. Myers
1962 D. Crowther
1963 R. P. Knill-Jones
1963 S. Campbell-Smith
1964 T. P. Dutt
1964 C. J. Kelly
1965 M. A. P. S. Downham
1965 R. C. N. Williamson
1966 M. Setchell
1966 P. Belchetz
1967 J. Sills
1967 R. Staughton
1968 T. A. Lister
1968 A. J. F. Fletcher

Barts in 1893

We reprint extracts from the
first volume of the Journal

Vol. 1. October, 1893

Mid-Summer Address to the Abernethian
Society

CLINICAL APTITUDE

By Sir Dyce Duckworth M.D., LL.D

The modern order of the curriculum is thus
designed to produce a fully trained and
equipped man. (p. 2)

Cholera

In our next issue we hope to report the
seven suspected cases which have been
admitted into the Hospital during the present
epidemic. Dr. Klein has also promised a note
on the subject. (p. 5)

CLINICAL JOTTING

By Samuel West M.D.

Poisoning from Sardines

A girl of 17 was admitted on August 30th
extremely ill—in a state of great asthenia,

St. B.H.J., October, 1968

almost collapsed and with a t' of 104. At the
time of admission no history was obtainable
which threw any light on the case. As the
throat had been a little sore, diphtheria with
profound asthenia was thought of. All the
specific fevers could be excluded, except
typhoid, which the asthenia seemed to render
most probable. The temperature remained very
high for four days, reaching once a maximum
of 104.6. No throat symptoms developed, nor
was any evidence of typhoid fever forthcoming;
the motions were formed and natural. The pro-
found asthenia caused great anxiety for the first
two days, but with the fall of temperature, all
the symptoms improved. After four days the
patient was convalescent, though feeble, and
she made a rapid recovery. It was then
ascertained that two days before her admission
she had eaten of sardines, and that the rest of
the family her mother and sister, who were the
only others who had eaten of them, had both
been taken ill, though the symptoms were much
less severe and rapidly passed off. (p. 9)

The Annual Summer Concert

Given by the Junior Staff and Musical Society

Nurse Mitchell sang most sweetly "My
ladie's bower," and received the encore she
deserved. Mr. Nugent Baker sang "The devout
lover," and "Off to Philadelphia." The latter
favourite especially took well. (p. 12)

Notes

Sir James Paget, who has lately been severely
indisposed, is, we are glad to say, very much
better. (p. 13)



We note that the sanitary inspector to the
Hospital has thoroughly investigated Mac-
kenzie's, and reports that, considering the age
of the building, it is in a most satisfactory
state hygienically, and that no further improve-
ment can be added short of demolition. (p. 14)

St. B.H.J., October, 1968

The Boxing Club

Owing to a singular reticence on the part of
the officers of the Boxing Club, we have been
unable to gain any information with regard to
its doings. (p. 27)

Cases of Ataxic Paraplegia

(Ataxic Neuritis)

ABSTRACT OF A CLINICAL LECTURE

By Samuel Gee M.D.

October 12th 1893

Third Case

T.B., 55 years old; admitted into Luke ward
on October 16th, 1893. Denies syphilis; has
drunk about a pint and a half of beer daily, and
has been in the habit of getting drunk upon
beer about once a week. (p. 34)

Notes

We hear that the Governors of Christ's
Hospital have decided that the boys of the
school are not again to inhabit the ancient
buildings, which are in far from a sanitary
condition. (p. 44)

St. Bartholomew's Hospital Musical Society

The Royal British Nurses' Association Sixth Annual Conversazione

The Nursing staff was ably represented by
Nurse Duffus, who sang "Coming thro' the
Rye" in excellent style. (p. 61)

Extracts from a new Dictionary

By our comical correspondent
(continued)

Examiners

Don't joke. Examiners don't like jokes—at
least not other people's.

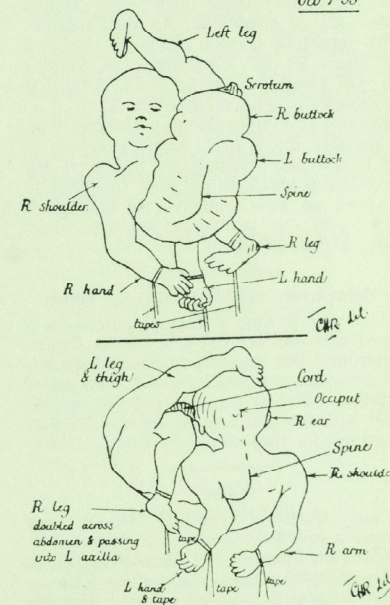
Should the examiner make a joke, on no
account omit to laugh heartily, and let the smile
linger. (p. 62)

Transverse Presentations of the Foetus

By C. Hubert Roberts, F.R.C.S., M.B., M.R.C.P.
Demonstrator Practical Midwifery to St. Bar-
tholomew's Hospital Physician to Out-Patients
Samaritans Hospital for Women
Marylebone Road

Trans. Presentation - one of Twins.

Oct 7 '93



TWO VIEWS OF THE SECOND CHILD TO SHOW THE CURIOUS
DOUBLING UP OF BODY DURING EXPULSION.

Notes

We hear that it is probable that some altera-
tions in the drainage of Christ's Hospital will
be agreed to by which it will be possible for the
present buildings to be temporarily occupied
again until the new school is ready. (p. 94)

REVIEWS

Aids to the Treatment of Diseases of Children

by McCaw (Balliere, Tindalle & Cox) 3/6d.

One of the reasons why we recommend it, if for no other, is the chapter on the "Feeding of Infants and the Choice of a Wet Nurse," which subjects are so vaguely dealt with in ordinary books on midwifery. (p. 95)

Editorial

One man asks for "Some scandal about the Nurses and the Junior Staff"—we wonder whether any is obtainable. Another asks for "a full report of Clinical Lectures," while a third wants us to "Caricature the Visiting Staff," and a fourth thinks we should do well to "get someone to write a Novel for it."

Obviously it is impossible to please everyone, but amongst Bart's men, where everyone is ready to cavil and condemn, and few—very few indeed—are prepared to put their shoulders to the wheel, we have come to the conclusion that we may feel gratified if we succeed in pleasing anyone at all. (p. 97)

The Manufacture and Composition of Opium

At the present time a Royal Commission is engaged with the investigation of the Opium question in India, and in connection with this topic an interesting article by Dr. Mayard of the Indian Medical Service, and one of the official opium examiners, is of considerable importance. (p. 101)

Notes

A very interesting lecture on "Nurses, their Recreation and their Work", was delivered by Miss Stewart, Matron of St. Bartholomew's, at the Royal British Nurses' Association, Hanover Square, on March 30th. Miss Stewart upholds the cardinal principal of *mens sana in corpore sano*, and recommends golf and other outdoor exercises for Nurses. (p. 109)

One for the Demonstrator

Some years ago, in the anatomical department of the Leeds school of medicine, a local surgeon, since deceased, gave daily demonstrations in the dissecting-room. He had, or affected

to have, a peculiarly bad memory for faces, and when questioning the students individually as to the work before him, it was his wont to select one of them, and address him thus, "What is your name, sir?" and on the reply being given, would again ask, "What year's man are you?"—invariably remarking next, "I have never seen you before in the dissecting room; how is that?" One day he gave his usual demonstration, and at its conclusion fixed his eye upon one of the students, a sharp little Jew, to whom he had on more than one occasion addressed the above remarks. "What is your name, sir?" he asked. "My name is Breistein, I'm a fourth year's student, and you've never seen me before," was the unexpected reply, which was greeted with a shout of laughter from the surrounding students and a stare of astonishment from the demonstrator. (p. 110)

A Visit to the International Congress at Rome

Great simplicity is manifest in the habits of the Neapolitans: the decencies of life are lightly regarded. In the course of an early morning's walk I saw children basking in the sunshine, and playing at the doors of the dens they inhabit, without a shred of clothing on their bodies, yet at an age when it is at least customary to dress; but the air is pure, and we were told that Naples has immensely improved during the last decade or two. There is still room for it. (p. 118)

Notes

Physic, says an old surgeon, is the art of amusing a patient while Nature cures the disease. (p. 121)

A Reminiscence of Forty Years Ago

He took me on one occasion by an underground passage to Christ's Hospital to taste the excellent pea soup for which that institution was famous! (p. 191)

On the Cure of the King's Evil

Read at Abernethian Society, St. Bartholomew's Hospital, October 30th, 1890, by D'Arcy Power, M.A.Oxon, F.R.C.S.Eng.

In speaking to you of the King's Evil, Mr. President and Gentlemen, I am opening up a topic which has exercised the time and talents of the best surgeons in England for many hundreds of years past, and it is with merely a

résumé of the methods that adopted by our predecessors that I wish to occupy a brief part of this evening. (p. 130)

Practice among the Afghans

By J. A. Gray Late Surgeon to H.M. the Amir of Afghanistan.

Practising among the Afghans presented, I found, certain initial difficulties. Of the commonest disease in the country, "remittant fever," I had never seen a case. I had read of it of course, in Roberts and Quain, but I found that was a very different thing to knowing the disease practically. The food of the people—I didn't know what to order for a sick man whether it should be "pilau" or "kourma"; "shola" or "shorba"; "shere-o-brinj" or "ghosht-wa-nan." (p. 132)

Notes

We are very pleased to see what an excellent likeness the Hon. John Collier has made of Dr. Andrew. It is a three-quarter length portrait, and Dr. Andrew is standing in his characteristic attitude, his right hand in his trouser pocket, and in the other hand his well-known stethoscope. (p. 153)

On May 23rd last, Sir James and Lady Paget celebrated their golden wedding.

Concert given by the Members of the Junior Staff and the Musical Society

A great deal of interest was excited during the evening in the Junior Staff Part Song, by a rumour that though a few of the singers had been over the song together on two occasions, there had not been one complete practice. The Junior Staff, however, proved equal to the occasion, and their rendering of "O, who will o'er the Downs so free," was really a great success, though one lady, when told afterwards that there had been no practice, was heard to say, "I'm not suprised to hear it." We, editorially, think this is a very unfair criticism. (p. 159)

The United Hospitals Sports

The weather ruled propitious for the 25th Annual Meeting of the United Hospitals, and, though it gave the company present one or two scares, the threatened showers held off, deciding not to interfere with so good an after-

noon's sport. The company present was not as numerous as in former years, the threatening weather and the Eton and Harrow match keeping many away; but those present had a capital afternoon, for they would seldom see three better races than the 220 yards, the 440 yards, and the half-mile, especially the last. Three Hospital records were made, a fact speaking volumes for the character of the racing.

The contest turned out to be a tussle between Bart's and Guy's, no other school being ever seriously in it. We managed to bring back the Shield to the Library, from which it has been missing since 1892, by the substantial majority of six wins and six seconds, to Guy's five wins and four seconds, St. Mary's taking the odd second. Prior to 1892, Bart's held the Shield for seven years in succession.

Guy's were unlucky in having H. T. Bell hampered by a bad foot, and he is to be congratulated on the plucky way he stuck to it. Munro, as usual, ran in excellent form and completely out-classed his rivals in the Mile and Three Miles. In the Bicycle Race, Milbank Smith rode grandly, finishing second, twenty-five yards behind the winner, after losing nearly a lap early in the race.

Five Miles Bicycle Race

Result

Austen Wood, Guy's	1
H.H.J. Milbank Smith, Guy's	2
A. S. Bruzard, London	3

Milbank Smith's coat got entangled in hind wheel, and he had to dismount to remove. This lost him nearly a lap and cost him the race, as he could not get on terms with Austen Woods, though he finished only 25 yards behind him. (p. 172)

Diphtheric Sore Throat

Certain it is that a physician of any repute, nowadays, cannot rest content with the means of diagnosis which were alone available to an older generation. It is now essential that he should use the ophthalmoscope and laryngoscope; investigate the condition of the blood with microscope, haemocytometer, and haemoglobinometer; be able to use the battery in testing the condition of the muscles and nerves, and be able to analyse the urine far more accurately than is necessary for the mere determination of the specific gravity, the reaction, and the presence of albumin and sugar. (p. 187)

a view of the city - underground

by R. E. Nottidge

A day in the City sewers. Dr. Nottidge explores—guided by a former patient from Rahere with Weil's Disease.

Sewers are inscrutable. If they were less so, they should have a large and sympathetic public. My own curiosity was unexpectedly satisfied the day I met Tom.

His bulk, so unsuited as I thought to his profession, filled the bed in Rahere. His quietness gave no clue to the anxiety he felt. His father and grandfather, both sewer-men before him, had died of jaundice. Now he had it himself—Weil's Disease.

public lavatory

When he was well again—it was a mild attack—we went on our manned excursion through his mysterious underworld. We assembled, my companion, myself and Tom, at a public lavatory (for gentlemen of course) near Kings Cross. We garbed in the overalls and hob-nailed waterproof leggings provided for the purpose by the City Corporation, and clutching lamps descended anxiously through a manhole into the dark.

slimy stone

I borrowed my courage from the broad figure of Tom stooping in front of me, and in those first moments it was needed more than in any other as the descent led us immediately into a smooth and circular tunnel where the Fleet River itself, cold and swift, tugged at our knees. The hobnails found little purchase on the slimy stone, and only the strong frame of Tom downstream of us offered any hope of safety for us if we slipped. The prospect of being swept away in the darkness to a worse than watery end in the Northern Outfall Sewer was before us. We lacked even the hope of an exit into the Thames beneath Blackfriars Bridge, for, as Tom explained, this route is now only a relief outlet for storm water.

manholes

We now proceeded—mainly on the surface—from manhole to manhole through the City, unregarded among the umbrellas and bowler hats. There are no maps of the city sewers, only the sewer-men know where to go, a circumstance Tom seemed to enjoy. The origins of some of them go far back in history, as around the Charterhouse where they represent the bricked-up field ditches outside medieval London.

We squeezed through the egg-shaped four foot sewers, and peered down the three-footers. We observed the character of their contents in each quarter of the City. We went appropriately to the neighbourhood of St. Mark's Hospital and risked our lungs in the terrible effluvia under the works of a distinguished pharmaceutical firm. We visualised the hazards of Tom's fraternity, and doffed metaphorical headgear at various murky corners where Tom had known narrow escapes or disaster among his colleagues. From time to time we heard the roar of a major arterial sewer as its contents cascaded over a drop.

rats

We saw the rats, innocent-looking enough and modest in size and numbers. Tom said they only attacked women in the sewers, which was naturally a rare event. We could only speculate on the reasons for this mysogeny. He seemed not to remember their association with the jaundice.

greasy smell

What of the atmosphere? It was rarely faeculent, except where a blind-ended sewer served a residential area. Underground water flushes many of the sewers which have replaced the original streams and rivers of the Thames basin. The usual flavour was the tepid greasy smell of a stale kitchen sink, familiar to every London boy who has done his share of peering down gratings.

We emerged finally in Clerkenwell, and returned our garments to a Corporation van. We thanked our guide, whose honest person seemed now almost a symbol of the wholesome serviceability of a good sewer system, obscure but indispensable.

We then made all cowardly haste for the Accident Box, as my companion had a cut on his head.

St. Swithin's E.C.1

by Richard Gordon

Richard Gordon (real name Gordon Ostlere) edited the Journal in 1944. After dabbling in anaesthetics, he left medicine to take the literary world by storm.



Doctor in the House was written almost twenty years ago, while I was medical officer in a cargo boat going to Australia (via Newfoundland, but nobody told me that before we started). I never saw any patients. The crew were either amazingly healthy or they distrusted my ministrations—quite rightly so, as during the past three years I had been an anaesthetist, for whom surgery is strictly a spectator sport.

My duties at sea consisted mainly in drinking gin with the chief engineer and listening to his reminiscences of Glasgow. It was as prophylaxis against hepatic cirrhosis and Caledoniophobia that in the Tropics I set up a typewriter on a shady corner of the deck and started a book about my experiences as a student.

I have since been asked how I knew that such strange antics occurred in St. Thomas's or St. Mary's, or the Middlesex, or the Cardiff Royal Infirmary, or whatever. All teaching hospitals are much the same, with their odd traditions, odd consultants, disgraceful legends, and favourite little pubs round the corner. But the St. Swithin's of *Doctor in the House* must plainly be Bart's. And the old prewar, delightful autocratic yet hearteningly iconoclastic Bart's, at that.

beer-reeking

A stroke of luck was my being a student during the war, when so many of the retired staff unselfishly returned for duty. I found myself among ward sisters who were wonderful examples of enduring and uncompromising Victorian efficiency like steam locomotives. The pub in the book was a mixture of the White Hart and the beer-reeking Vicarage in the basement, though the "Pardre" was hearsay. The students . . . well, we were much as to-day, except that we ran amok in pursuit of football trophies rather than high principles. But it was the St. Swithin's consultants who gave the story backbone.

characters

Sir Lancelot Spratt was an amalgam of Bart's men, I used a bit of Sir Girling Ball, who as Dean admitted me to the hospital, and a bit of Lord Alwyn, who as Treasurer threatened to throw me out of it. There was some of Mr. Harold Wilson (F.R.C.S., not P.M.), already embedded in student affection by the photograph on page 2 of Dr. Charles Fletcher's *Candid Camera*. And some of Mr. Roberts, a valuable critic of the Hill End food, who would appear with dishes attracting his stronger displeasure in the office of the unfortunate medical superintendent. And of course, there was some of Dr. Geoffrey Evans, whose strident "Would yer believe it?" rang so welcomingly from those bleakly tiled walls in out-patients'.

quirks

If my models were distinguished clinicians and administrators, if I had picked on their eccentricities, that was surely to their credit. Quirks of manner and speech adopted by our savants are the most comforting features of British academic life. It is so much more agreeable for the teacher than the stiff and distant *Herr Professor* role assumed so easily elsewhere. It is so much more effective for the taught. And it is so much more fun for everybody within earshot.

I'm sure the next 75 years will be as rich with "characters" at Bart's, for someone else to depict. After all, there has been a splendid supply of them over the last eight hundred.

seventy-five years of the journal

by John L. Thornton

Mr. Thornton is hospital Librarian. Here he recounts 75 years of the Journal

One of my first self-imposed tasks on coming to Bart's in 1938 was to compile an author index to this *Journal*. The indexes to individual volumes were inadequate, few of them having entries under names of authors, and the resultant index to volumes one to fifty, 1893-1947, has proved invaluable in tracing requisite information. The author index is still maintained up to date on cards.

Indexing each volume was a lengthy process, not merely because indexing is a tedious task, but on account of the fact that the indexer was usefully sidetracked into reading much of the material. It is a record of the history of the College and Hospital through the appropriate years, and in retrospect provides invaluable information on events, students and staff of the past.

functions

The functions of an organ such as this are various. They include the recording of past and forthcoming events; the announcement of births, marriages, deaths, honours and appointments; examination results; book reviews; lists of recent publications; records of sporting activities; correspondence; cartoons; retirement and obituary notices; and original articles. These take the form of lectures delivered within the College, information on the work of the various departments, clinical articles, and occasional contributions from Bart's men based on experiences abroad. Briefly, the *Journal* is intended for current

students, and for those of the past who subscribe to it in order to maintain contact with the College, and with event concerning their contemporaries.

ups and downs

There have been special issues to mark outstanding events, such as royal visits; highlights when capable editors and managers have produced outstanding issues without inviting bankruptcy; and lean periods, such as war years when paper and contributions were both in short supply. Despite ups and downs the *Journal* has survived with monthly regularity the inevitable continual change of editors and other officers. A lean period has been followed by a revival in more capable hands, and the list of editors includes the names of several who later attained success in medical journalism, or as authors.

anecdotes

Reminiscences of members of the staff sometimes contain otherwise unrecorded history and personal anecdotes. Among other articles Alfred Willett contributed writings on "Edward Stanley"; "Our Medical School as I first knew it"; and "The surgical side of the Hospital fifty years ago". Sir William Selby Church was the author of "St. Bartholomew's Hospital and medicine during the last fifty years", and "Sir Thomas Smith. An appreciation". Sir Archibald Garrod wrote on "St. Bartholomew's fifty years ago", and Sir Walter Langdon-Brown contributed an interesting series of essays, including "John Hunter and St. Bartholomew's Hospital", "Robert Bridges: the poet of evolution", and "The plague in England". C. B. Lockwood was the author of "Some personal reminiscences of Sir George Humphry", and was himself the subject of an interesting Wix Prize Essay contributed by E. C. O. Jewesbury. Howard Marsh wrote on "Some former acquaintances", and appreciations of Samuel Gee and Sir James Paget. Two outstanding medical historians, Sir Norman Moore and Sir D'Arcy Power wrote extensively on various aspects of the history of the Hospital, and Sir Geoffrey Keynes has supported the *Journal* with contributions both historical and clinical for over fifty years. Some of these are written under the pseudonyms "St. D.", or "St. Damien", and I was particularly impressed by the humanistic approach in his "Lena's crab or, the old lady who knew".

personal choices

Probably it is invidious to pin-point obviously personal choices from such a wealth of material, but I must mention Sir Arthur Keith's "Fresh light on John Abernethy", and point out that other non-Bart's contributors include Ruby M. Ayres ("What the doctor ordered")! We have had reports on dramatic performances, the annual pot-pourri show, the activities of the various clubs and societies, candid camera shots, reviews of non-medical books and records, fashion notes, and more recently interviews with "pop" stars. How some of the older Bart's men must boggle at "modern trends", even as *their* elders squirmed at *their* "new-fangled" ideas. "The *Journal* is nothing like it was", one can hear them muttering. But it is. It is a mirror of contemporary activities reflected by the current generation, and as such is part of the history of the College and Hospital.

change

The clinical articles reflect the development of medicine over the past seventy-five years, and it is fascinating to delve into the early

volumes. Some subjects then given prominent attention have disappeared with the advances in therapeutics and public health, but we are still eminently concerned with cancer, the rheumatic diseases, respiratory diseases, congenital disorders and the inevitable iatrogenic diseases, sometimes termed side-effects! We particularly note the developments in surgical treatment, in haematology, in renal dialysis, and the tremendous strides in drug therapy. More attention is paid to geriatrics, mental health and to child welfare, yet much remains to be accomplished in every branch of medicine. In twenty-five years time this *Journal* will celebrate its centenary, and someone will be glancing back through the volumes, comparing the then status of medicine and of medical students, with their "ancient" counterparts. He will no doubt be as critical of the present as we are of our predecessors, but we hope that he will remember that *his* present will be built upon foundations laid by the trials and errors, as well as by the successes, of earlier generations.

Complete references to articles mentioned can readily be ascertained from the author indexes available in the Library.

seventy-fifth anniversary

by R. B. Price editor 1909

Though it started when he was as eight-year-old boy,

This aged and doddering colonel,
Continues surprisingly still to enjoy,
St. Bartholomew's Hospital Journal.
As its oldest ex-editor living today,
He views with approving concern all
Attempts to present in a livelier way
St. Bartholomew's Hospital Journal.
And Now, as it passes this latest mile post
With a stamina seeming eternal,
He invites all its readers to honour this toast—
"St. Bartholomew's Hospital Journal!"

many happy returns by

Alfred White Franklin, one-time Editor

A seventy-fifth anniversary is worth something, even at Saint Bartholomew's, weighed down by the traditions of eight and a half centuries. Anniversaries merit congratulations on survival—did not Darwin teach us that you have to be fit to survive? We can purr contentedly about past achievements and then ask "Where are we going?" History and tradition impose themselves on the answer.

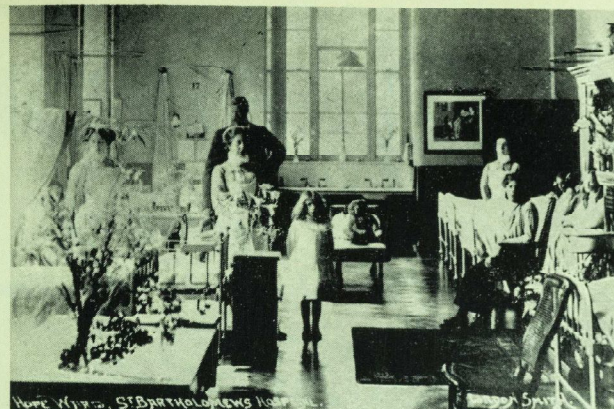
Both the Hospital and the Journal face two questions: whether survival now in a recognisable form is desirable, and whether it is possible. The Hospital can call on previous experience. Founded through a Holy Vision and with a King's consent, it flourished through four centuries owned and administered by the Church. When King Henry Eight and his embryonic civil service took over the English section of the spiritual power and worldly possessions of the Church of Rome, Saint Bartholomew's Hospital and Priory were dissolved. The City of London, content without the Priory but needing the Hospital, secured the shaky signature of the dying King for a new charter. For almost another four centuries the Hospital survived as a secular society supported by munificent Aldermen and citizens. The Governors and members of our corporation were privileged persons in a privileged society based on the private ownership of wealth. The intellectuals of the nineteenth century with their studies of the under-privileged began to erode the foundations of that privileged society. We in Smithfield could afford not to notice any change and to offer to those who wished and who qualified through

poverty a technically modern medicine hallowed by eight hundred years of service.

The old privileged society has gone. King Henry's civil service, now fully grown, sits on the throne, its corporate will moving the hand of the Minister for the Time Being to sign the charters and dispense the wealth. We practise a New Medicine in a New Society. Organic disease has diminished in a land of well-distributed plenty, where hygiene, housing and food are good, where fatal epidemics have disappeared and where infection has been disarmed by vaccination and antibiotics. We do not yet know how to prevent accidents, cancer, congenital defects and diseases of degeneration, but these are extensions of traditional medicine. The promotion of emotional, social and moral health demands new studies and new kinds of prevention. Can the Hospital help? Is the future to be reconditioning or replacing worn out and damaged organs or a step out from behind ivory walls into the community? Can we adapt our ancient corporation to the needs of the future and at the same time preserve the Bart's-ness of Saint Bartholomew's?

Today planning replaces natural growth and decay, imposing a pattern, tidy and uniform and reasonably expected to satisfy needs. The needs themselves are not urgent and obvious so much as calculated and predicted. Modern medicine is viewed as a science to be practised by technologists. The personality cult is out, to be left to quacks, and the community's need for quacks has not yet been studied. The mystique of the consultant has no place, for one doctor is as good as another, and all hospitals are equal. The size of a medical school is dictated by dividing the predicted total requirement for doctors by the number of schools: quantity which can be measured over-rides quality which cannot. Since change cannot be resisted, our duty is to carry into the future the best from the past.

And the Journal? The Editor of the Practitioner at the recent centenary celebrations of that periodical guessed that the printing on paper and the distribution of one copy of each current journal to the house of each reader would one day be discarded in favour of an electronic method. Meanwhile rising costs and falling incomes limit subscribers. Does this mean a smaller journal or fewer members in the year? We might follow Lord Todd's lead and fuse the journals of several hospitals or produce a London University Medical Journal. Here I would like to bury my head in the sand and simply wish the Journal many more years of prosperity in its present form.

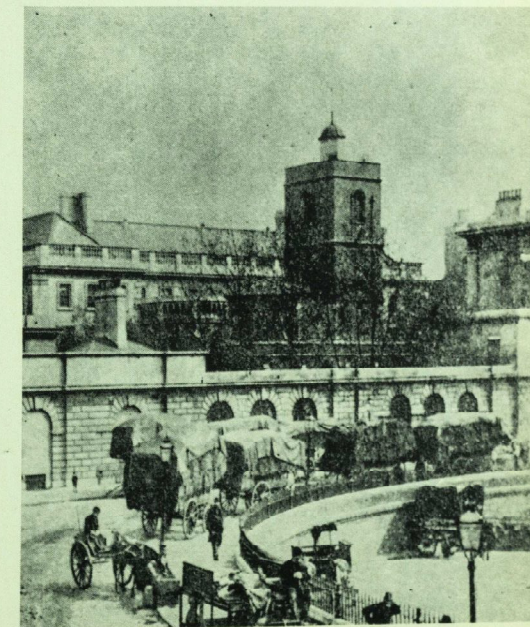


Giltspur Gate

c. 75 years



Operating Theatre 1888



EDITORIAL

opinion

anniversary

We began on October 14th, 1893. Our intentions were clearly defined (*see this month's cover*). Each editor since then has attempted his own interpretation. But what is our role in 1968? Journalism must entertain—it must be interesting. Influence is only achieved with readership. Our role is to provide an exciting journal. It is written for Bart's, but we hope others read it too.

journalism

Doctors must face each other and the world. Who better to represent us than ourselves? Newspapers tear at our throats. Television mocks our pride. We need spokesmen. A valiant few must leave our ranks to preach medicine to all men.

4d. or 5d.

4d. and 5d. mail produces gross social difficulties. English has always been spared the "tu" and "vous" distinctions, which must have plagued the life of every Frenchman. Now in England we must classify our letters. Is she worth 4d. or 5d.? Is it correct to send a 4d. letter to one's bank Manager? Time will tell.

photo by A. F. Cornelius



the barts journal in war-time

by E. Grey-Turner

M.C., T.D., M.R.C.S., L.R.C.P.

Mr. E. Grey-Turner was editor of the Journal in the early war years. Here he recounts some of his exciting experiences.

Greetings and congratulations to the Bart's Journal on its 75th birthday! I was Editor in 1940-41, and it is possible that I have the dubious distinction of having brought out the Journal in conditions of greater difficulty than any other editor before or since. London was enduring the *blitz*, and both Bart's and our printers were hit by bombs. I recall that the Dean's secretary helped me a good deal (I cannot now remember her name) and that our printers (name also forgotten, alas) faced and overcame all difficulties with true cockney grit and cheerfulness.

Here are a few extracts from my daily diary

of the period. I should perhaps explain that, as well as editing the Journal, I took my Finals, did my share of duty (like everyone else) in the Casualty Clearing Station at Bart's, and commanded a platoon of the Home Guard near my home in Bucks. (I delude myself that this is why I failed the second part of the Cambridge M.B.).

Thursday 3rd October, 1940

"Walked to Bart's (not a single light in Little Britain!).

In the West Wing basement some fellows were in bed, while the housemen were having a noisy party.

Prepared a bunk then went to the Surgery. Treated a policeman's boils, then heavy gunfire re-opened, so went up to the roof and joined the spotters. Vivid flashes, the hum of German aircraft, resounding booms and thunderous crashes (these the naval guns)—then the shrapnel pattering down faintly over all the City roofs. Very occasionally the slow crump of a bomb, and one good whistle as a bomb descended. But it didn't last long. I enjoyed it immensely, and would like to be up there in a heavy raid.

Back to the C.C.S. Coffee with the nurses, wrote a letter, bed at 1.30 a.m.

London is a remarkable place these days."

Monday, 21st October, 1940

"Very pessimistic about the war just now. All the Balkans are going over to the Axis without a murmur, and I'm afraid Turkey may go too.

Called at the Ministry of Information today about an article for Bart's Journal. It is in London University building. Very busy. The officials seemed to be drawn from all walks of life, not at all like Civil Servants. The Ministry struck me as efficient, but rather weary—it feels its task to be a thankless one.

Glancing over a Deputy Assistant Director's shoulder, I saw a list of buildings damaged in London about which nothing may yet be said. I noticed Marlborough House, German Embassy, Royal Hospital, Chelsea.

A vehement speech by Churchill to the French nation. Immensely cheered when he said, in a matter of fact way, that we would never surrender.

A Molotov bread-basket fell near here last night. Bright light."



little britain
after bombing

Monday, 11th November, 1940: Armistice Day

"There was no official silence today, but I spent the two minutes on the roof of Bart's. There was an Air-Raid on at the time. As I stood in the keen November wind, looking out over the vast expanse of grey roofs, showing no scars of battle from that angle, save the bombed block at Bart's and the roof of St. Paul's; and as I looked towards the G.P.O., St. Paul's, and Westminster; I thought of all the other places I had been in on Armistice Day, and of that first great Armistice Day in London in 1918."

Saturday, 7th December, 1940

"I find to my amazement that my salary as Editor of the Bart's Journal is £30 a year! But it entails a lot of work.

The Greeks continue to advance. Marshal Badoglio and another senior Italian general have resigned, which is significant, to say the least."

Monday, 30th December, 1940

"Gigantic incendiary raid on the City last night. Some dislocation of West End traffic. All round Bart's great hoses lying in dozens along the streets, motor pumps working everywhere, fires still burning in Newgate Street, Ludgate Circus, St. Paul's Churchyard, etc., etc. A pall of smoke over the City. Guildhall destroyed. Busy all morning in C.C.S. dealing with casualties. Many firemen, who work magnificently. Shortage of water and electricity. But everyone cheerful. What is the idea of this wanton raid? Is it a prelude to invasion?"

Wednesday, 14th May, 1941

"London is certainly terribly damaged by bombs. Last Saturday's raid has been at least as serious as that of 16th April. Bart's is badly damaged—two bombs, most of the Hospital glass broken, no electricity and not much water. Wards emptied, but C.C.S. functioning normally. This was View Day, and a certain number of visitors accompanied the Governors on their melancholy round of inspection. Everyone remains cheerful. I spent most of the afternoon removing thick dust from the Journal office, whose windows are gone.

First anniversary of the formation of the Home Guard—and it still occupies a good deal of my time and energy."

Thursday, 19th June, 1941

The marvellous heat wave continues uninterrupted. All day correcting proofs and making up the Journal at Bart's. The Journal takes up a great deal of my time, and is a most exasperating task. I shall be glad to retire in a month or so.

Then this evening my H.G. Platoon was inspected formally by the Batt. Commander, Col. Ashwanden, after which we did a short tactical exercise against No. 1 Pln. The inspection was satisfactory; my men were smart and drilled quite well. The exercise was not so good. The whole performance lasted till about 11.30 p.m., and was very exhausting."

the first editor

Dr. Borchers was the first editor of the Journal, 1893. His granddaughter talks about him.

Walter Meent Borchers, the only son of Petrus Borchardus Borchers and his wife Jane Henrietta Murray was born at Graff Reinet, Cape Colony, South Africa on August 28th, 1866.

His father, grandfather and great grandfather were all magistrates. The latter, also named Petrus Borchardus, was Civil Commissioner for the Cape Division and and Resident Magistrate of Cape Town and District. Among his other activities he was Chairman of the Central Roads Board of the Cape and one of the Government Nominees to the Council of Directors of the South African College—the forerunner of the University of Cape Town.

founder

The founder of the Borchers family in South Africa was the Reverend Meent Borchers, the great great grandfather of Walter Meent Borchers. Appointed by the Dutch East India Company to serve as a minister to the Dutch Reformed Church in Cape Town, he

arrived in South Africa from Holland in 1785 in the Company's ship "Het Meeuwjtje" (little Seagull).

moederkerk

Never in robust health, his inclination led him to prefer the quiet of the country to town life and at his request he was appointed to the moederkerk in Stellenbosch where he served the ministry for the next forty-four years. His home in Stellenbosch "La Gratitude" is now an Historic Monument.

wide interests

The Reverend Meent Borchers was a man of wide interests, a lover of poetry and music. His son Petrus Borchers in his "Memoirs" mentions that his father used to complain of "the sad want of taste for reading in those days."

printing press

In 1800 the first printing press was introduced in the Cape Colony and its first literary publications were two poems by the Reverend Meent Borchers; one to the "Society to promote Agriculture, Arts and Science" and another entitled "De Maan." (The Moon).

educated

Walter Meent Borchers was educated at St. Andrew's College, Grahamstown, South Africa and Caius College, Cambridge, England from where he graduated in 1891 with a B.A. degree (Natural Science Honours); St. Bartholomews Hospital (Shuter scholar) 1892; M.R.C.S.; L.R.C.P.; London 1894.

Fellow Obstetrical Society, London 1894—
Fellow Royal Society of Medicine (date of admission not known).

His studies at Cambridge were interrupted for a year when he returned to South Africa suffering from early Tuberculosis.

sidgewick

At St. Andrew's College he was Victor Ludorum in two consecutive years and rowed for Cambridge.

During a Cambridge vacation, he was invited by Professor A. Sidgewick to accompany him on an expedition to Sicily to study Marine Biology.

married

Before returning to South Africa he married Miss Annie Croxford Gambell, a nurse from St. Bartholomew's Hospital.

active service

He saw active service during the Anglo-Boer War with the Imperial forces and the 1914-1918 War with the S.A.M.C.

In South Africa he practised medicine in several parts of the Cape Colony finally settling in Upington, Gordonia in 1908 which remained his home until his death in 1948 at the age of 82 years.

prominent part

A former District Surgeon, Railway Medical Officer and Medical Officer of Health, he played a prominent part in the development of the town and district.

Upington in the North West Cape lies on the Orange River and its district extends up to the Kalahari Desert. In the early days there were few amenities but Dr. Borchers lived to see much of the enormous development which has since taken place.

Electricity, water, modern sanitation, telephones and a hospital were his inspiration and in the achievement of which he was the prime mover.

wide range

From the Hospital's inception until a few years before his death he was the Chairman of the Hospital Board.

With a wide range of interests, his interest in Natural History remained with him all his

mesembryanthemum

life; an interest which he encouraged in his children and grandchildren. His knowledge of the flora of the North West Cape was extensive and a new species of Mesembryanthemum discovered by him in Namaqualand was named —Mesembryanthemum Borcherdsei.

fodder

The value of the drought resistant grasses of the Kalahari as fodder claimed his attention and at the time of his death, he was in correspondence with the head of an Institute in America on the subject. The Institute was anxious to have supplies of the grass seed for experimental purposes but unfortunately this had to be abandoned.

enchantment

The Kalahari Desert possesses a certain enchantment with its natural features of dunes, space, animal and vegetable life, the home of the bushmen, and its legends. Dr. Borchers was not immune to this enchantment; he knew so much of the conditions to be found there and one legend at least he firmly believed in, "The Lost City of the Kalahari."

expedition

With Farini the traveller's book to guide them he and Mr. Paver, the then Editor of The Star, Johannesburg organised an expedition to look for it. The City was not found but the expedition proved most interesting.

In recent years other expeditions by plane and from different approaches have found an outcrop of rocks so placed they might be mistaken for an abandoned city partially buried in the shifting sand dunes.

consulting rooms

Reporting the death of Dr. Borchers, the Cape Argus of Cape Town wrote:— "Dr. Borchers made the Kalahari his consulting room in the days when Doctors travelled by wagon or Cape cart. There was not a desert adventurer the old Doctor did not know and he has carried many secrets to the grave with him.

reflections from a blank mind

by Dr. A. J. Salisbury

Dr. Salisbury was editor of the Journal in 1955. He still manages to keep his mind completely blank after all these years.



On being asked to contribute a few lines to this issue of "Bart's Journal" my mind became a blank. I am constitutionally unable to think of any appropriate subject on which to write. Although moved to express my pessimistic views on the interference of authority in individual matters, culminating in an Act of Parliament, requiring one to love one's neighbour, I felt that this topic was scarcely suitable for the "Journal".

"goldfish"

My memory went back some thirteen years to similar times; each month I was obliged to search my mind for a suitable Editorial. On the first occasion I paced the square for half-an-hour or so in a desperate quest for inspiration. Only then did I notice a possible theme in front of me—I wrote on the rather unlikely question of "Goldfish".

It is tempting to pursue such ancient memories; I retired to the library to see what other Editorials I had written.

A certain blush of embarrassment came to my cheeks when I noticed that two Editorials were concerned primarily with food. I am not exactly a walking advertisement for a slimming diet. I can only apologise for my preoccupation with such matters and suggest that hunger was brought forcibly to my mind by the exercise incurred in the preparation and publishing of the "Journal". This work involved regular walking tours of a circuit comprising Bart's—Saffron Hill—Liverpool Street—Bart's.

sober

Another Editorial interested me, in the light of present developments. This dealt with the objects of the "Journal", based on the aims expressed in its very first issue. I think that some criticisms made at the time have now been answered. In 1955, the "Journal" was a rather sober publication and the second of the original aims—to promote esprit de corps among students past and present . . . by including matters of interest to them in daily life—was not well fulfilled. There was little of general and social interest apart from Sports Reports, lists of House Appointments and tables of examination results.

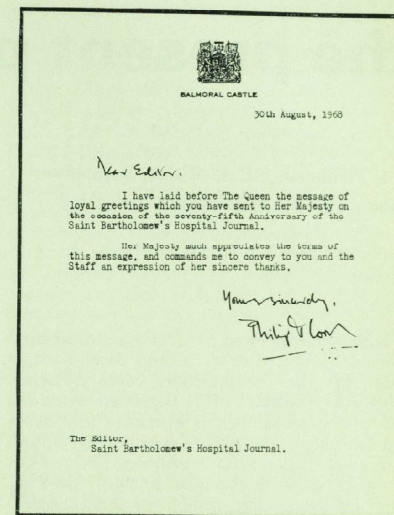
This state of affairs has now altered dramatically. The sports news is expanded and much more attractively presented (although I consider that putting it at the front of the "Journal" is going too far). Reports of social activities have become commonplace and reviews have extended to non-medical books and films.

In short, the "Journal" has become a much more readable publication. I hope that this improvement will be maintained in the future.

p.s.

I was tempted to write an article on "Songs that never reached the Ward Shows". However, fear of libel actions constrained me. One song, entitled "Mr. Wasser and Mr. Kalin" eventually appeared in the "Journal". It had been banned from the Ward Show by Dr. Lawther, who had said that the show was syphilitic enough as it was (although I believe that he used stronger language). Another song, a few years later, was based on "Let's do it, let's fall in love". It dealt with the sexual behaviour (or lack of such) of every member of the Consultant Staff and ran to many verses. Needless to say, no one was brave or foolhardy enough to sing it in public.

CORRESPONDENCE



Sir,—In his letter to the Journal last month, Mr. W. E. J. Leverton stated that the closed circuit television (C.C.T.V.) systems in use in the Medical School and Hospital are incompatible and unco-ordinated as no central television department exists.

Firstly, all systems (except the specialised equipment in the Department of Pathology) are compatible as the level and impedance at which C.C.T.V. transmission takes place is nationally and internationally standardised. Further, one system in the Medical School and one in the Hospital have been designed to allow fully interchangeable video tape facilities.

Secondly, these C.C.T.V. systems may appear, to the casual observer, to lack co-ordination but considerable co-operation and collaboration exists between the user departments.

As for setting up a central T.V. service, anyone who has had to use a centralised service knows only too well the frustrations to which the user is subjected and one rarely gets value for money as any central scheme always absorbs a high proportion of its cost in administration, e.g., N.H.S., whereas individual departmental systems cost much less, as each is tailored to the user's needs, instead of being an expensive universal system and also has virtually no administrative costs. We are sure few departments would relish a considerable reduction in their budgets to finance a central C.C.T.V. department, especially those who find little application for C.C.T.V. in their everyday work.

Yours sincerely,
J. D. GASKING and
J. P. OULLIAM.

Hyperbaric Oxygen the present position

F. S. Plumpton, F.F.A., R.C.S., Department of Anaesthesia, St. Bartholomew's Hospital

Therapy with oxygen at above-atmospheric pressure is not new. Its history dates back at least to the seventeenth century, when Nathaniel Henshaw (1677) suggested treatment in a pressure chamber as beneficial for "acute and chronic diseases". A century ago, more than fifty hyperbaric chambers existed in Europe and North America, and in 1878 Paul Bert published the results of his classical experiments on the biological effects of hyperbaric oxygen (HPO). Since that time there have been several phases of increasing enthusiasm, followed inevitably by a waning of interest some years later. The most recent resurgence started during the 1950's, and while this wave is already well past its peak, and disillusionment has set in over several originally hopeful applications, there are still some fields in which positive benefit has been shown.

Physiology

In the subject breathing air at atmospheric pressure (alveolar $P_{O_2} \approx 100$ mm), blood contains about 20 ml oxygen per 100 ml. Of this only 0.3 ml is in solution, the remainder being combined with haemoglobin. At this level the haemoglobin is actually 97% saturated, and breathing oxygen at 1 atmosphere pressure ($P_{O_2} \approx 670$ mm) only raises the content to 22 ml/100 ml, most of this rise being due to an increase in oxygen dissolved in the plasma. At 3 atmospheres absolute (3 ATA) the theoretical alveolar P_{O_2} is 2140 mm, but the content has risen to only 26 ml/100 ml. Although this

increase of 6 ml may seem small, it is in fact equivalent to the normal arterio-venous oxygen difference; and it is this observation that led Boerema to observe that hyperbaric oxygen makes "life without blood" possible. Furthermore, the greatly increased capillary-tissue diffusion gradient which follows the enormous rise in blood oxygen tension can provide a very rapid means of restoring cellular oxidation.

Methods of Treatment

Two main types of high pressure chamber are in clinical use. The simpler is the one-man pressure vessel (figure 1), which has the advantage of relative economy, but is limited to brief and uncomplicated forms of therapy. The large air-compressed chamber (figure 2) allows more complex treatment including surgery, but besides subjecting the attendant staff to some of the hazards of a hyperbaric environment (though only the patient breathes pure oxygen, through a mask), it is much more expensive to install and maintain. The Glasgow chamber, for example, requires the full-time services of three qualified engineers. It is therefore unlikely to be available in more than a very few centres in the foreseeable future. There is an intermediate "7-man recompression chamber" (Miller and Bayliss, 1966), which may provide a good compromise. Most of the investigations in this country have been carried out at 2 atmospheres absolute, while elsewhere pressures of up to 3 ATA are employed more commonly.

Applications

Hyperbaric oxygen has been used for a bewildering variety of diseases, but the lack of controlled studies, and until recently of rapid and accurate methods of measuring blood oxygen tension and content, have made a reliable assessment of its effects very difficult. The conditions for which it is used can be divided, rather arbitrarily, into (A) Hypoxic, (B) Ischaemic (in both of which any benefit depends on the relief of tissue hypoxia) and (C) Infective (where a potentially toxic effect is turned to advantage).

(A) HYPOXIC

Carbon Monoxide poisoning provides the principal application of definite usefulness in this category. Tissue hypoxia is relieved immediately by the dissolved oxygen, and in addition workers in Glasgow (Smith *et al.*, 1962) have shown that at 2 ATA the clearance rate of CO from haemoglobin is approximately doubled, compared with conventional forms of therapy. Although an ambulance version of the one-man chamber is in use in a few centres, the main difficulty lies in bringing the patient to a hospital where therapy is available before irreversible cerebral damage has occurred. For this reason it is unlikely that HPO in the practical situation will improve the mortality significantly, although the much more rapid recovery that occurs once treatment is started might be expected to reduce the morbidity. However, the changeover to North Sea gas, which is predominantly methane, will make carbon monoxide poisoning much less of a problem in this country in the future.

The second definite application in this group, so obvious that it is often forgotten, is in the treatment of *decompression sickness* ("The Bends"). This syndrome is due to the formation of nitrogen bubbles in the body during a too rapid return to atmospheric pressure. It may occur in caisson workers, naval divers, or even doctors working in hyperbaric environments. Stout surgeons are said to be particularly susceptible, since they may release a large volume of static nitrogenated venous blood on suddenly standing up during decompression.

Possible benefits in other hypoxic conditions are less certain. Hutchison *et al.* (1966) have

published a series of cases of *neonatal asphyxia* in which HPO was equally as successful as endotracheal intubation and positive pressure ventilation. The advantage claimed is that hyperbaric therapy (in a special small chamber) can be started immediately after birth, since a skilled intubator need not be present. Reports of its use in the *respiratory distress syndrome* of the newborn have been disappointing (Hutchison *et al.*, 1962, Duff *et al.*, 1967) but in *pneumonia* benefit may accrue both from an increased pulmonary gas exchange and a direct effect on the infective process (Hopkinson, 1967). In the adult with *chronic respiratory failure*, treatment with hyperbaric air (Ledingham and Tindall, 1966) can produce blood gas improvements similar to those obtained with small controlled increments of inspired oxygen by more conventional means, and the discomfort of continuously wearing a mask is avoided. Finally, in the treatment of the tissue hypoxia associated with *shock*, the usefulness of HPO remains uncertain. One would expect to find an increase in the oxygenation of underperfused areas, and improved survival rates have been demonstrated in dogs with haemorrhagic shock (Young and Clark, 1965), especially when a pressure of 3 ATA is used (Attar *et al.*, 1962, Elliot and Paton, 1965). However, human evidence is scanty.

(B) ISCHAEMIC

In normal tissues an increased arterial oxygen tension produces a protective homeostatic vasoconstriction, which tends to counteract any possible advantage of the improved blood oxygen content. However, there is some evidence (Hopkinson, 1968) that after a period of exposure to HPO, vasoconstriction may give way to vasodilatation; and moreover vessels in ischaemic areas appear frequently to be immune from the vasoconstrictive response from the start (Ledingham, 1966). Again, oxygen applied locally at increased tension has the ability to reach cells distant from an exposed surface, regardless of the regional blood flow.

The most striking results here have been in *arterial injuries* to limbs (Norman and Smith, 1966). Improvement is particularly marked in the young, and when treatment can be started promptly. However, such injuries are not common, and the usefulness of HPO therapy in *peripheral ischaemia* due to other causes such

as arteriosclerosis or thromboangiitis obliterans is much more doubtful. It is evident that treatment should ideally be continuous for at least 48 hours to allow time for a collateral circulation to develop, if any permanent improvement is to be achieved; but the use of such prolonged periods of treatment aggravates the problems of oxygen toxicity. Current work in Glasgow suggests that the simultaneous use of a vasodilator such as tolazoline may enhance the benefits of HPO in these conditions.

There have been several reports of *improved healing* of skin grafts, chronic ulcers and burns (Perrins, 1967, Slack *et al.*, 1966, De Jode *et al.*, 1965). The mechanism here may be one of accelerated healing and/or reduced infection by direct absorption of oxygen through the exposed surfaces, and this seems to be a particularly promising field.

In heart disease encouraging work showing improved survival with HPO following coronary ligation in dogs (Smith and Lawson, 1958) has not so far been consistently borne out in clinical trials of patients with *myocardial infarction*, though recent results from the Westminster Hospital are more hopeful (Vickers, 1968). Bernhard *et al.* (1965) have claimed a reduced mortality associated with correction of certain congenital cardiac defects in the very young. However, during *cardiopulmonary bypass* or circulatory arrest, as in other situations where the problem is one of raising oxygen content rather than tension, the improvement due to HPO is unlikely to be dramatic (Moor *et al.*, 1966).

Results in conditions involving the nervous system have also been equivocal. Heyman *et al.* (1966) claimed a clinical improvement with HPO in patients with recent *cerebrovascular accidents*, but in most of their cases the signs of ischaemia recurred on returning to a normal environment. In the treatment of *cerebral oedema* following cardiac arrest or associated with increased intracranial pressure, a lightening of the level of consciousness has been noted by the Glasgow group during administration of HPO, but here again it will be difficult to assess the effects of therapy until more is known about the vasoconstrictive action of oxygen on the human cerebral circulation. During *carotid disobliteration* the use of HPO has been found to increase cerebral oxygenation (Jacobson *et al.*, 1963).

The enhanced radiosensitivity of some tumours in an oxygen-rich environment (Gray, 1961), together with the diminished vasomotor activity of neoplastic tissue, have led to several

large-scale trials of HPO in association with *radiotherapy* (McEwen, 1966, van den Brenk *et al.*, 1967). There are obvious difficulties in obtaining adequate controls, and no definite conclusions can be drawn as yet. Similarly, following the observation by Krementz and Knudson (1961) that the effect of nitrogen mustard on certain tumours in mice was enhanced by HPO, at least two uncontrolled trials have suggested a beneficial effect of hyperbaric oxygen when combined with radiomimetic drugs in man (Duff, 1967). However, this is not in agreement with the results of studies on this side of the Atlantic (Adams *et al.*, 1963).

Another application whose usefulness is likely to increase during the next decade is *organ storage*. Ackerman and Barnard (1966) have described a method for the successful storage of canine kidneys for 24 hours in a low temperature hyperbaric environment, and an isolated dog heart has been restarted after three days' preservation under similar conditions (Mirkovitch *et al.*, 1966).

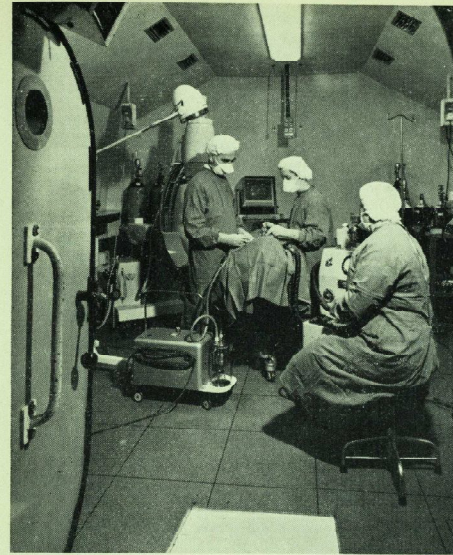
(C) INFECTIVE

Boerema's group in Amsterdam pioneered the use of hyperbaric oxygen in the treatment of *gas gangrene* (Brummelkamp *et al.*, 1961), and subsequent studies indicate this to be one of the few conditions in which benefit definitely occurs. Thus in a review of all reported cases of gas gangrene treated with HPO (170 at that time) van Zyl (1966) reported improvement in 75%. Pascale *et al.* (1964) have also claimed good results in an uncontrolled series of *tetanus* patients. Many aerobic organisms are known to be susceptible to the toxic effects of oxygen in vitro (McAllister *et al.*, 1963), and *superficial infections*, including diabetic and varicose ulcers and burns, have been found to respond well (Moon *et al.*, 1964, Slack *et al.*, 1966, De Jode *et al.*, 1965).

Several studies (Slack *et al.*, 1965, Hamblen, 1968) have claimed improvement in *osteomyelitis*, though it has been suggested that HPO may exacerbate some deep-seated infections (Pennock, 1966).

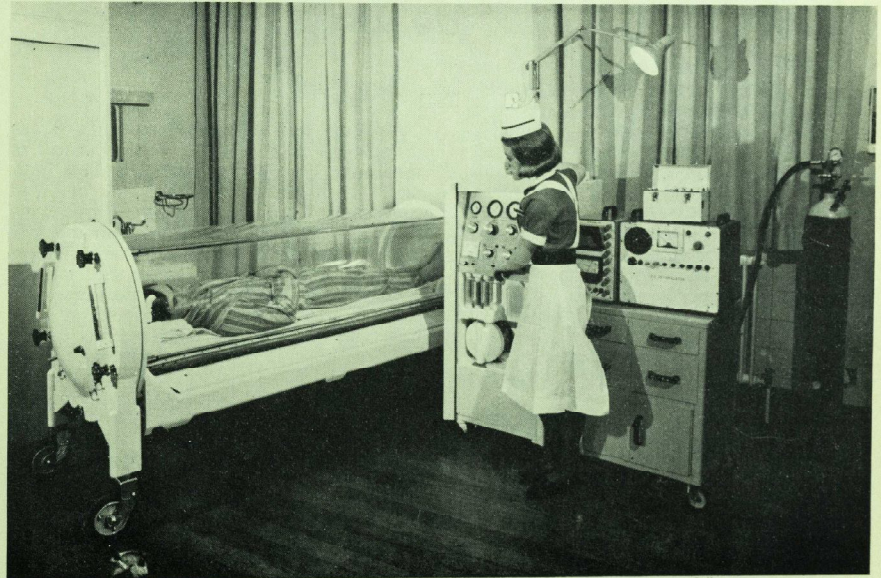
HAZARDS

A leading article in the *Lancet* in 1965 suggested that "within a few years oxygen under pressure may prove to be one of the most useful, versatile and dangerous forms of treat-



operation

hyperbaric
treatment



ment". Oxygen in excess is a cellular poison, and HPO differs from most other forms of treatment in that it can be hazardous to hospital staff as well as patients. The principal

as a result of hyperbaric therapy, and it is probably no more hazardous than deep radiotherapy or treatment with some of the more potent drugs.

TABLE 1

USES OF HYPERBARIC OXYGEN

DEFINITE	(A) HYPOXIC	POSSIBLE
Carbon Monoxide Poisoning Decompression Sickness	Neonatal Asphyxia Respiratory Distress Syndrome Pneumonia Chronic Respiratory Failure Shock	
Arterial Injuries	(B) ISCHAEMIC Peripheral Ischaemia Skin Grafts, Ulcers, Burns Myocardial Infarction Cardiopulmonary By-pass Cerebrovascular Accidents Cerebral Oedema Neurosurgery Radiotherapy Organ Storage	
Superficial Infections Gas Gangrene	(C) INFECTIVE Tetanus Chronic Osteomyelitis	

manifestations are seen in the nervous system and the lungs. Dizziness, headache and convulsions may occur after as little as 30 minutes' exposure to 3 atmospheres, but are much rarer at the lower pressures commonly used in this country. Congestion and oedema of the lungs, whose direct contact with the high pressure environment might be expected to make them particularly vulnerable, never occur in exposures of under 24 hours to less than 4 atmospheres. Other tissues particularly susceptible to oxygen poisoning are the naso-pharyngeal membranes, the conjunctiva and, in the neonate, the retina (retrolental fibroplasia). All these risks are minimised if the pressure is limited to 2 ATA.

Apart from decompression sickness, other complications of a hyperbaric environment include rupture of cardrums and lung bullae, avascular necrosis of bone and claustrophobia. Finally, there are the physical risks of mechanical failure and fire, the latter being much greater where the compressing agent is oxygen rather than air (Denison *et al.*, 1966). However, it must be admitted that no-one has yet died

CONCLUSIONS

Over the past few years hyperbaric oxygen therapy has been tried for a wide variety of conditions. Very often treatment has been instituted at the end of a long period of failed conventional therapy, and not surprisingly results have frequently been disappointing. It is certain now that the outlook is more limited than was originally hoped, but in the treatment of carbon monoxide poisoning, decompression sickness, arterial limb injuries, superficial infections and gas gangrene, some success can be claimed. What is doubtful is whether the expense of adequate equipment is justified (the unit recently installed at the Lutheran Hospital, Chicago, cost more than one million dollars). The development of more sophisticated methods of measuring oxygen at the tissue level should lead to a more accurate assessment of its true usefulness, and while at present one cannot say that a hospital is out of date simply because it contains no hyperbaric chamber, it is clearly an advantage to have easy access to hyperbaric facilities.

ACKNOWLEDGMENT

I am grateful to Dr. W. I. Hopkinson for criticising the manuscript.

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record reviews

NEW FROM MFP:

Liszt: Piano Concertos Nos. 1 and 2; Samson Francois and The Philharmonia Orchestra with Constantin Silvestri. MFP 2095.

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Beethoven: Symphony No. 9 in D Minor—Choral—Op. 125 with the Mendelssohn Choir of Pittsburgh; and Symphony No. 8 in F Major Op. 93 with William Steinberg and the Pittsburgh Symphony Orchestra. MFP 2099/100.

To review these new recordings from E.M.I. separately would not only be long and tedious but also very repetitive since so much of what one says of an L.P. recording is applicable to any recording of the same standard. As far as actual technical recording is concerned they are all much the same, but if I said that the French horns came through a trifle too much in the second half of Pomp and Circumstance March 4, there are few who are in a position to disagree and even less who are quite honestly interested. In point of fact I find that each of these recordings are very well balanced, and unless one has a really first class stereogram, I doubt if anyone will find anything inferior in these recordings.

MFP are to be congratulated too on the L.P. sleeve since it makes a pleasant change to see on three out of four sleeves the composer taking pride-of-place in the biggest boldest types, the music titles next and finally the Performers and Conductor of course on the Rachmaninov recording Sir Malcolm Sargent does take precedence but then in a financially biased world doubtless the company cannot afford to do less.

Liszt's Piano Concerto No. 1 has an essentially rhapsodic character. Solos are heard from

the piano—and the triangle—whilst the flute and clarinet have two short dialogues with each other, and with the piano, in the first introductory movement and the second, slower, movement. The mood changes several times in the course of the work but ends with the opening motive on a fine triumphant note.

The Second Piano Concerto has a quieter quality, the main themes being introduced quickly and then these are developed as the mood changes to a somewhat faster tempo which reaches a climax with a rousing march with the piece terminating in much the same fashion as the first.

I shall not be so presumptuous as to give a resumé of the Elgar recording since it is essentially a commercial record, these subjects being some of Elgar's best known works. Suffice it to say that this is Elgar at his best—and certainly most popular—and that the record, at 13/11d. is a very good buy.

The recording of Rachmaninov, or should I say Sir Malcolm Sargent is again very good if not so well known as that of Elgar. The symphony is divided into three movements unlike his first two which are divided into four. It was published in 1937 just six years before his death, and was one of Rachmaninov's favourite works.

Finally Beethoven's Symphony No. 9 has been given the de luxe treatment by MFP with the splendid Pittsburgh choir at its best. This symphony and Symphony No. 8 are being sold together at the remarkable price of 27/10d. and are both well worth looking into.

C.F.

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book reviews

A System of Orthopaedics and Fractures, by A. Graham Apley. 524 pp. Third Edition. Published by Butterworth & Co Price £6 6s.

The fact that this is the third edition of this book first published in 1959 shows how good and popular it is.

It is extremely well and most clearly written, and one of the features which makes it so outstanding is the large number of very clear photographic illustrations, not only to show the clinical appearance of the various conditions described, but also to demonstrate the examination of various parts (such as the hip joint on p. 258) and apparatus used in treatment. In addition there are a large number of excellent radiographic illustrations and line drawings of various conditions.

The text is also extremely well and clearly written, so that not only is it easy to read, but by being so well laid out, it also makes the various important features very easy to memorise, which is so important for both pre and post graduate students.

The only criticisms are that, perhaps a rather

excessive amount of the text space is occupied in the description of bone and joint tuberculosis, which thanks to anti-tuberculosis drugs, and the general improvement in health standards is now comparatively uncommon and perhaps a little more space and illustrations could have been used in the description of amputations and prostheses.

The price of this volume, for medical students, is also perhaps a little high, though this could not be avoided in order to cover the cost of the excellent photographic illustrations.

J. N. Aston, F.R.C.S.

Fires of Youth, by James Lincoln Collier. With a foreword by Robert Lusty about a curious case of plagiarism. Penguin Books. 4s.

This novel won a literary prize for one who did not write it. The man was Don Robson, serving a sentence in one of H.M. prisons.

The story is a sensitive portrayal of an adolescent love affair, green and passionate, of a jagged relationship between father and son.

Set in Gwellyndrue, south of the Welsh mountains, the scene rings of the American mid-west. A wild, fast novel.

Andrew Fletcher.

ANNOUNCEMENTS

PAGAN—On August 20th, to Fiona (née Roule-ton) and Dr. William Pagan, a daughter (Alison Mary).

Deaths

BARNES—On August 10th, suddenly, Warren Alston (Bonzo) Barnes, J.P., M.B., B.Ch.Cambs., M.R.S., L.R.C.P., aged 67. Qualified 1925.

BATTERHAM—On August 11th, Douglas John Batterham, M.A., M.B., F.R.C.S., aged 73. Qualified 1923.

PLEWS—On August 3rd, Dr. John Mackay Plevs, M.B.B.S., M.R.C.S., L.R.C.P. Qualified 1903.

Appointments

Dr. M. M. Posel has been appointed Honorary Consultant Physician to the Johannesburg Hospital.

Change of Address

Dr. and Mrs. Guy T. Sharp to Point House, Point, near Truro, Cornwall (Teock 773).

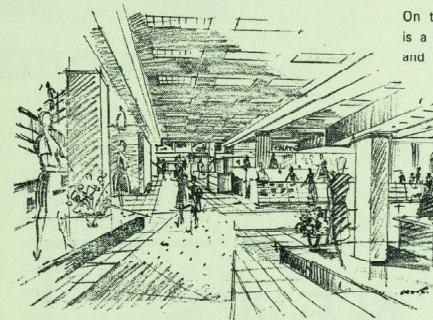
From August 1st, S. C. Kohli (Resident Surgical Officer) to: St. Mary's Hospitals, Whitworth Park, Manchester 13, M13 0JH.

RECENT PAPERS BY BART'S MEN

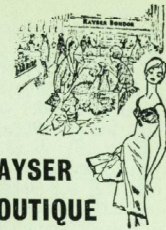
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* Reprints received and herewith gratefully acknowledged. Please address this material to the Librarian.

LATE NEWS

NEXT ISSUE

- (1) Psychiatry: material commissioned by Tony Newman-Taylor
- (2) Scientology: a report by John and Gillian Vanhegan
- (3) Austrian Food: by Robin Raynor
- (4) Education: by Gavin Haig
- (5) Poems: gathered by Ron Knight
- (6) Feature Article from our Nurses' Correspondent

ENGAGEMENT

BUTTERISS—TREW.—The engagement is announced between Pilot Officer Michael Butteriss and Miss Jennifer Trew.

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JOURNAL

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Oetztal Alps

photo by author

Bergsteigeressen

Robin Rayner discusses Austrian delicacies available to mountaineers in Alpine huts.

by Robin Rayner

Bergsteigeressen means mountain climber's meal, and is the name applied to the basic meal (cost about six shillings) which all warden huts of the Austrian Alpine Club are obliged to provide. It must weigh at least 500Gr. and contain a specified amount of protein. There are few varieties offered, the commonest consisting of two or three lumps of stewing steak in a rich gravy, sitting on top of a large pile of macaroni (or other pasta) or half-fried, half-boiled potatoes. Some huts offer fried eggs or sliced sausage with potatoes, whilst one hut I visited this summer could

only supply soup with a couple of Frankfurter sausages in it.

Bergsteigeressen is available for lunch and supper, but for breakfast one must either pay seven shillings for three slices of bread and marmalade—and hut bread is always stale—or one must carry one's own food up to the huts. I found that people staying at the huts fell into two main classes. There were those who walked from hut to hut with minimal kit and maximal financial resources, who paid for three meals a day plus tea, coffee, beer and wine, and who seldom emerged from their beds before eight o'clock in the morning, and there were people like myself and my companion who carried enough food for several days' breakfasts and lunches, and relied on *Bergsteigeressen* for supper.

hot water

Teewasser (hot water in a jug) costs about ten pence per pint, and it is much cheaper to provide one's own tea-bags and sugar than it is to buy their rather weak tea at about one and six a cup.

If one economises and restricts oneself to bread, butter, jam, cheese and sausage, and pays for tea water, the odd bowl of soup and *Bergsteigeressen* it is possible to eat and sleep for eighteen shillings a day. There are so many different sausages that such a diet cannot become monotonous. However, when one is confined to the hut because of bad weather, or because of avalanche dangers on the mountains following a fresh fall of snow, one tends to eat more than when one is active—a result of boredom and watching wealthier people indulging themselves!

Whenever we could think of a sufficiently good reason—which was about every other day—we would treat ourselves to a more elaborate (i.e. 7-12s.) meal than *Bergsteigeressen*. Our favourite was *Kaiserschmarrn* which we were told was named after a famous Austrian general (cf. sandwiches after Lord Sandwich). It is made from milk, flour, eggs, sugar and butter and may or may not contain raisins. It takes the form of a pancake whose thickness varies from half an inch to an inch according to the cook, and it is served torn into small pieces and liberally sprinkled with icing sugar. Any greasiness is offset by the generous quantity of cranberry jam (*Prieselbeer compott*) with which it is served.

Wiener Schnitzel was another firm favourite.

A good one covers a fair proportion of a dinner plate, and it should be easy to slip a knife between the golden-brown coating and the meat. Veal escallops are neatly trimmed, and a few incisions are made around the edges. They are then beaten well with a wooden mallet. Three dishes are prepared: one with plain flour, one with egg mixed with a little cold milk and a pinch of salt, and one with breadcrumbs. The escallops are dipped into flour and the surplus is shaken off, then into the beaten egg and finally into the breadcrumbs. Surplus crumbs are shaken off. The escallops should be prepared only shortly before they are required and are fried in deep smoking hot lard or oil, only a few being cooked at the same time. They are fried until golden brown on one side and are then turned carefully for the other side to be browned. They should be drained well and be served with a slice of lemon, potatoes and a salad. *Krautsalat* is commonly employed, and consists of shredded white cabbage and caraway seeds soaked in a water/vinegar/sugar mixture.

Naturschnitzel is again a veal cutlet but this time there is no batter, and it is rubbed lightly with salt and pepper prior to frying in butter, lard or dripping.

Tiroler G'Roestl is a local speciality and is very similar to a Swedish dish. A large onion is cut into rings, is fried in a tablespoon of dripping until golden brown and is then lifted out. Another tablespoon of dripping is added to the pan and a couple of cups of diced or sliced previously boiled potatoes are added. These are browned and then two cups of sliced cooked beef are added. When the meat and potatoes are brown and crisp the onions are returned to the pan, stirred in well, and then salt, pepper and caraway seeds are added. The dish is served sprinkled with chopped parsley and is really delicious.

Gulasch is an Austrian national dish and is different from Gulyas which is Hungarian—in Hungary *Gulasch* is known as *Pörkölt*. The commonest examples of *Gulasch* are *Rindgulasch* (made with beef) and *Kalbsgulasch* (made with veal). Austrians maintain that *Gulasch* tastes best when it has been warmed up and this might explain why it is always available at the huts. A typical *Rindgulasch* requires 1½lb. beef, 1½lb. onions, a tablespoon of paprika, some fat for frying, salt, marjoram, caraway seeds and vinegar. The onions are sliced finely and fried until golden brown. The paprika is added, the mixture stirred once and then two tablespoons of water

are added. The meat—previously cut into cubes—is thrown in and the whole is stirred until the water has evaporated. Salt, marjoram, caraway seeds and a dash of vinegar are added and the lid is put on the saucepan. When the meat is really tender—after a lengthy period of gentle simmering—a little more water is added, the gas is raised and the goulash is stirred well and is cooked for a few more minutes. Some people add a crushed clove of garlic with the caraway seeds, some add a shredded green or red pepper, some include a tablespoon of tomato purée and there are many other variations. Plain boiled potatoes are usually served with this fine dish, but *Nocklerl* (bread dumplings) are the traditional accompaniment.

roast pork

The Austrians roast pork rather well, rubbing it first with salt, pepper, French mustard and garlic, and sprinkling it with caraway seeds; they call it *Schweinsbraten*, and it is rather expensive.

Many of the more exotic dishes were not obtainable in the huts and as the main purpose of our trip was to climb mountains we had little opportunity for eating in restaurants. Perhaps one day I will have the chance to try *Gebäckenes Hirn* (brains in egg and breadcrumbs), fried calf's head, or saddle of hare in cream sauce. We tried something which rejoiced in the name of *Tiroler Speziatpeckplatte*—a special bacon dish—but were disappointed to find that only the dish was special (wooden and square with a handle to it) and that the bacon was merely a dozen incredibly thin slices of ham arranged on it in an attractive herring-bone pattern! It was served with a slice of stale brown bread.

There was quite a selection of soups. My favourite was *Beuillon mit Ei*. The soup starts its life as the water used to prepare *gekochtes Rindsfleisch*—boiled beef. The beef is simmered very slowly with about eight different vegetables. The liquor left after boiling is *Rindsuppe*. This is weisse (literally white, but in fact golden yellow), or braune (brown) if the vegetables and bones were fried before being boiled. The liquor is strained to leave *Klare Rindsuppe*. A raw egg yolk is broken into a dish and the soup is poured over it to give

Bouillon mit Ei, which is really delightful and very refreshing. A whole raw egg is often used but the white becomes stringy and awkward to eat.

Many soups are just *Rindsuppe* with additions after which they are named. Thus liver dumplings in clear beef broth becomes *Leberknuedelsuppe*. *Backerbsensuppe* contains *Backerbsen*—little "peas" produced by pouring batter through a perforated spoon into smoking hot fat and frying them until they are golden brown. There are many other variations which we did not try, including one called *Rindsuppe mit Einlage*—with a "deposit."

Gulaschsuppe contains much meat and vegetables and is quite filling, as is their pea soup.

The only desserts available at the huts are *Kaiserschmarrn* and the similar "jam omelette", and *compott*—tinned fruit. However, when we went down to a village on a wet day to replenish our supplies of food we would sample the big fivepenny peaches or the fine Italian grapes, and would make pigs of ourselves with creamy cakes and other pastries.

apfel strudel

Apple Strudel is a wonderful concoction of apples, raisins, sugar, butter, breadcrumbs and strudel pastry. *Strudel* pastry is made from flour, vinegar or lemon juice, butter and salt, and much tradition and mystique lies behind its making—it is slapped smartly at one stage, and is then left to ripen before being pulled. The instructions for making *Apfel Strudel* are complicated and are far too long for inclusion in this article, but the end result makes the effort well worthwhile.

Linzer torte is a very popular pastry but each baker seems to have his own variation. In most Austrian dishes the sugar employed is icing sugar, but caster sugar will do if necessary. **Plain** flour is used. A recipe for white *Linzer torte* is given here. Five ounces each of sugar, flour and ground almonds are mixed with a pinch of powdered cloves and a pinch of cinnamon. Five ounces of butter is cut into small pieces and is blended into the dry ingredients.

Two egg yolks (or one egg) and the juice of half a lemon are added and a dough is made. Two thirds of this is rolled out and is used to line the bottom and sides of a buttered and floured flan case. It is spread with jam, and the remaining pastry is arranged in a criss-cross pattern over the top of it. The top is then brushed over with egg and is baked at Mark 5. When cold, *Linzer torte* is dusted

thickly with icing sugar whereupon it disappears rapidly unless hidden away from other people!

We tried two varieties of hazel nut gateau—both were superb—but chestnut gateau which also is reputed to be very good eluded us.

Austrian cheese cakes are extraordinarily light. A shortcrust pastry shell is baked first, and then this is filled with the "cheese" and is baked for about an hour. The "cheese" contains cream cheese, sugar, eggs, grated lemon rind, milk and flour and has a consistency somewhere between that of junket and that of lightly scrambled egg. It is incredibly good.

Sachertorte must surely be the queen of Austrian cakes. It was created by Franz Sacher, a master chef, and his recipe included, amongst other ingredients, 18 egg whites and 14 egg yolks. Most people cannot afford to adhere to this recipe and so many variations have evolved. It takes the form of a chocolate gateau in two pieces with jam (usually apricot, better if cherry) between the pieces and with chocolate icing on top. It may be served with whipped cream. The following recipe is that of Mrs. Gretel Beer and it is reproduced here in a slightly abbreviated form. The original appears in her book on Austrian cooking in the *Andre Deutsch* series of cookery books.

Take 5 oz. plain chocolate, 6 eggs, 5 oz. butter, 5 oz. icing sugar and 5 oz. flour. Sift flour twice. Separate egg yolks and whites. Break chocolate into small pieces, add a tablespoon of water and put in a warm place to melt. Cream butter with four ounces sugar, add egg yolks gradually. Add the melted chocolate (soft but not hot) and stir well. Whisk egg whites until stiff. Whisk in remaining 1 oz. sugar. Fold stiffly beaten egg whites into butter/chocolate mixture alternately with the flour. Bake in 9½ ins. buttered and floured cake tin at Mark 4 for 50-60 minutes. Spread with warmed jam when cold.

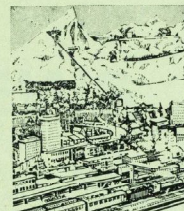
"For the chocolate icing break 4 oz. plain chocolate into small pieces and put to melt in oven. Dissolve 4 oz. sugar in 1½ tablespoons of water and cook to "small thread" stage. Remove from heat and leave to cool. Stir lukewarm sugar solution into melted chocolate and add a drop of good olive oil. Stir constantly until mixture has thickened sufficiently to spread over gateau."

If anyone makes a *Sachertorte* and wants to know how it compares with the genuine Austrian ones then I will be only too pleased to let her (or him) know! My generous offer refers to all the other dishes, too.

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SPORTS**NEWS**

The Open British Championship was held in Nottingham on the Trent. It was a hard race "up and down" on a fast river with one large weir to add to the excitement. In the ladies' event I was beaten into second place this year by Pauline Squires from Leamington.

Irish Championship

The following weekend we competed in the Open Irish Championship. Held on the Liffey this is really the most exciting of the L.D. Races. On the day of the race a large reservoir above the start is opened so that the water is running incredibly fast. There are six weirs—two of them over 12 feet high—and many rapids and low lying trees to contend with. The briefing is held in the Guinness mansion at Celbridge after which we parade through the village to the start. This year it was pouring with rain. Each class starts separately at five minute intervals there being about 200 boats in all from England, Ireland, Spain, Denmark, Austria and Sweden. Racing down the course one is always conscious of broken boats, people swimming and crowds of spectators. Using a new glass-fibre boat provided by Bart's I managed the top half of the course with one or two near misses including getting stuck on Celbridge rapids, turned by the current and carried 50 yards downstream backwards. Then on the second of the large weirs—Wren's next—I capsized. I imagined that would put me out of the race and no-one was more surprised or thrilled than I to hear the announcer proclaim me first lady home. I would like to thank the other members of the club for their marvellous support during the weeks prior to the race when all the hard work was done. It's really their success as well.

The next weekend was the Danish race which is 70 miles long raced over two days. C. Evans came third in the men's singles. I was unable to compete but hope to go next year—anyone interested in coming as well? That weekend R. Pumphrey was married to Dr. J. Williams in Penaerth and we wish them all the very best.

Several freshers expressed an interest in canoeing and we will welcome any newcomers down at the club on Wednesdays even just for a casual paddle—leave College Hall about 1.30 p.m.

A. HUSKISSON

PISTOL REPORT

This year was extremely successful, with club members in all University teams. I. McLellan, J. Reckless and J. Blake James all shot for the first team. In the University Individual Pistol Knock-Out all non-Barts contenders were eliminated by the semi-finals, and Ian McLellan won.

Later in the year we had some individual successes in the National Tiger Trophy Pistol Competition, when Ian, John Reckless and Justin Blake-James came 3rd, 4th and 11th respectively out of 56 in the "A" division. Ian also entered the National Proficiency Pistol Badge Competition and achieved the top award of World Standard Master badge.

The University's Pistol Team also had a good year, winning every division of every league it entered. Last year Barts made up half these teams and we would like to repeat this. So I hope that as many freshers as possible will come and try their luck with a pistol.

CANOE CLUB

Every year each of the five main countries interested in long distance racing holds its own "open championship". As reported last month C. Evans—ex-Bart's—represented Britain in Spain and now must be congratulated on winning the men's singles for the third time.

**FORUM
of the Students' Union**

**Report of the
Royal Commission
on Medical Education**

research by
Teaching Committee

words by
Paul Dieppe

Three years work by an aging group of Her Majesty's subjects; 400 fact-filled pages with 19 appendices; consternation in the press at the idea of amalgamated hospital rugby teams; perhaps it is not surprising that most students at Bart's have had little time for the Todd Report.

But can we afford to ignore it? It is, in fact, a very thorough survey of medical education in this country, and the Commons will soon be debating the revolutionary changes in the present system that are recommended in the Report. More paper for Mr. Wilson's shelf you may say; even so, many of the proposals made could easily be instituted in individual medical schools, and so change the whole structure of our education.

What does the Report have to say about the undergraduate medical course?

"... medical courses have become so congested and excessively factual in content that their educational value is open to question."

The Report claims that it is no longer possible to equip a student with all the factual knowledge necessary for modern practice in the available five years. It therefore recommends that the aim should now be the provision of a sound basis in medical and behavioural sciences, and a general introduction to clinical method and patient care. Post-graduate courses, varying in intensity and direction, would finally equip the doctor for practice in the field of his choice. The Report stresses the need for more flexibility, so that at all stages the student would have time for the pursuit of his own particular interests.

flexible course

Integration of the various departments and flexibility are essential; this is how the members of the Commission would organise the course:

There would be a three year preclinical course in "Human Biology" suitable for medics and non-medics alike. The large amount of material would be split into independent units, modules; some of these would be compulsory for medics (anatomy and physiology for example), but there would be plenty of scope for choice of learning. In the two years of clinical work, the bulk of the teaching would be handled as integrated topics, on the style of the familiar clinico-pathological conference, so that the artificial barriers between, for example, medicine and surgery would be broken down. Ideally, as you studied heart disease, you would revise the anatomy and physiology, cover the pathology and clinical features in more detail than in the preclinical years, and also study catheterisation, radiology and surgery of the heart and all the other relevant features. This topic teaching would be supplemented by small group teaching and clinical clerking. The whole course would be organised by an interdepartmental teaching unit, which would keep in constant touch with the students.

These are just a few of the proposals in this important report; they are based on the evidence of many people, including a large number of medical students... it seems that the Royal Commission has our interests at heart.



somnambulists...

sleepniks and pillow-talkers... any kind of sleeper is a potential insomniac. Even in these thankless times, the physician able to induce sleep earns gratitude—as you who have gone to anatomy lectures will allow: for sleeplessness threatens everywhere, in lectures and practicals, in the library, and perhaps most important of all, in bed.

Earn the gratitude of *your* patients. Use the

hypnotic that has an onset of fifteen to thirty minutes, giving sound sleep all night and a light, fresh awakening in the morning. Use the hypnotic whose safety and efficacy are clinically proved by years of world wide use.

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Quinalbarbitone sodium with amylobarbitone sodium: formula for a good night's sleep.



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medical education

by. Dr Gavin Haig

Our August issue featured education. Here is a further attempt to define an ideal approach.

*

"Everything has been said before, but as nobody seems to listen, we have to say it all over again." Almost everybody can cite examples of what he considers to be good teaching: crystallised, the answer is a simple one: a good teacher is one who can communicate enthusiastically. It follows that teachers are born, not made, and given that this Utopian state does not exist universally, the problem of maintaining student interest—and therefore endeavour, is a difficult one.

Varied teaching methods would seem to be more stimulating to the student mind, in spite of the very real possibility of the overlapping of subject matter. Knowledge, in its various

forms, can be instilled into the student mind by a skilled teacher using words, demonstrations, pictures and models, in the same way as a pharmacologist can introduce medicines into the body by different routes. A seventeenth century author, Sir Samuel Garth, referred in "The Dispensary" to "A barren superfluity of words". How apt his comment today with regard to traditional teaching methods. Words have their limitations.

Having said that teaching techniques should be many and varied, one must emphasise the need for a dominant method, giving form and framework to a teaching plan. A more detailed analysis of the various method which can be employed to teach Medical Students reveals that in general the students themselves have definite preferences.

The Tutorial, a method popular with both student and tutor, has been criticised by some as being too often like a formal lecture. The suggestion that students should know in advance the subject matter to be discussed in the tutorial so that, during their Clinical training they could see possibly their cases beforehand, would seem to be a good one. Students admit that they benefit from being told to read passages from textbooks and original papers with a view to answering specific questions during a "grind" or in similar form. This method helps to stimulate the teacher, and demonstrates each student's ability to express himself before the group.

group feed-back

Carrying on this idea of group feed-back, a method which is proving successful at Bart's at the moment is individual and group project work in which co-operating groups have assigned to them a subject for breakdown and analysis. The group then becomes the feedback point for its own members, and each group feeds back to the class as a whole.

Whilst realising the limitations of closed circuit television and films in the teaching world it is becoming increasingly obvious that for some subjects—for instance the teaching of electrocardiogram interpretation and the lumbar puncture and the setting up of an intravenous infusion, the use of film is positively indicated. The rate of learning is directly related to experience. It follows that if experience can be provided in the form of a motion picture which bridges time and space,

which can magnify or compress, which is accurate and repeatable, then the rate of learning will be accelerated.

Display methods, in the form of charts, drawings and photographs provide an ideal way of imparting knowledge. The teacher could learn a great deal from present day advertising media this respect. The ideal situation for this type of teaching would seem to be the Casualty Department, where text and illustration charts depicting, for instance, orthopaedic plaster techniques, cardio-pulmonary resuscitation or the application of sterile dressings are already proving successful. This idea could well be carried into the various Preclinical and Clinical Museums, since the visitor to the museum must almost by definition, be a seeker after knowledge. Each disease could be dealt with separately, with display headings such as Aetiology, Epidemiology and Prophylaxis, Pathology, Clinical signs and symptoms, Diagnosis, Treatment and Prognosis. Diagrams photographs, and brief text could be demonstrated together with relevant pathological specimens and references to textbook detail and original papers. The student would in this way collect a systematic picture of various diseases, whilst

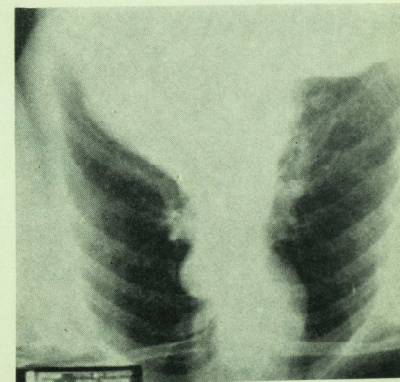
the more diligent are given opportunity and incentive for further study by the textbook and paper references.

The Group Discussion which so often, unhappily, becomes a device for answering students' questions, is potentially an exercise in creativity and disciplined verbal expression. From the teacher's point of view it can provide an opening into the student's mind and a yardstick by which he can measure the effects of his teaching. Both teacher and student can benefit from the give and take of discussion and the creation of a personal bond between them, so that subsequent lectures and tutorials are conducted in a relaxed atmosphere, rather than the formal communication of ideas from one unknown quantity to another.

In practice Medical Students seem to respond to a system of teaching in which advice and assistance on a pre-arranged topic is followed up by a formal lecture or ward round after which the subject is broken down in tutorial or group discussion form: display methods of teaching may be used in this context with good effect. Further evaluation of feed-back is provided in the form of oral, multiple-choice or short-answer essay questions.

RADIOLOGY QUIZ

The patient had signs of hyperthyroidism. What was the diagnosis?

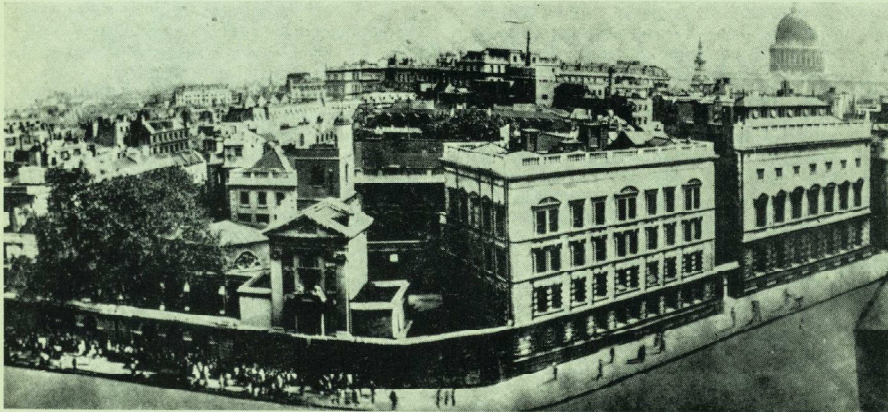


Rick Jolly

Answer: page 468

a compromise

Some time ago a trifling demigod
Chanced upon a chaos.
Form nor value entered there
And his ordered mind was sad.
But his small magic, though he tried,
Was not enough to obliterate
This nothing.
So he invented man,
His proxy.
And left it at that.



Barts in 1930

poems

tabla rasa

This man was born without papers
Seemingly.
And so for him there can be
None of the soft clinging
To mediocrity which for the rest of us
Is nationality.
He
Must write his own documents
And in his desperate eye of refugee
Is the fearing hope of finding
Something valid to forge.
It has to be good, you see,
For him to carry it off.
Customs scrutiny being as it is
(Searing the Stateless).
In the frightening blanks
He may scrawl "chattels" or
"Hedonism"; "mutualities" perhaps.
But perhaps not.
If he must steal a citizenship
Let it be first-class.

by

Paul

Bebbington

psychiatry feature

Psychiatric medicine is being increasingly recognised as an important factor in the treatment of somatic disease. Here we present four articles. Two of them deal with biochemical aspects of cerebral function.

cerebral monoamines

by C. M. B. Pare

A discussion on cerebral monoamines in the aetiology of depressive illness.

Depression may be a symptom of normal unhappiness, a neurotic's inability to cope, or a manifestation of a biochemical illness which can afflict a previously stable person quite out of the blue, or be precipitated by surgery, having a baby, or following some other physical or psychological upset. These endogenous types of depression often have a family history indicating a genetic predisposition and recently it has been shown that there are at least two types of genetic abnormality raising the possibility of two biochemically distinct disorders.

Recently important abnormalities have been found in intracellular sodium and in adrenocortical function in depressive states but perhaps the most exciting is the suggestion that depressive illnesses are due to a deficiency of one or more monoamines in the brain (Fig. 1). This stemmed from the observation that drugs which deplete the brain of amines such as noradrenaline (NA) and 5-hydroxytryptamine (5HT) result in the animal behaving as if it

were depressed. On the other hand, drugs which increase the concentration of active amines result in the animal becoming excited. Before some of this research is mentioned, a brief outline of the biochemistry and physiology of the brain monoamines is required.

In the brain, 5HT is found in the highest concentration in the hypothalamus, upper brain stem and the limbic area, NA in the hypothalamus and upper brain stem, and dopamine (DA) in the basal ganglia and substantia nigra. All three amines are commonly thought to be synaptic transmitters each with its own receptor. This theory, still far from being proved, has been strengthened by the recent demonstration by Scandinavian workers that there are three types of monoamine-containing neuron in the brain.

Very simply, monoamines such as NA and 5HT are stored in binding sites in nerve endings where they are inactive but protected from surrounding enzymes. In the case of NA there is a deeply bound pool situated in the region of the mitochondria and in proximity to the enzyme monoamine oxidase. A readily available pool is situated close to the receptor site, the two pools being in equilibrium. On nerve stimulation NA is released from the readily available pool to act on the receptor sites, most of it then being taken up again by the nerve ending for re-use, only a small proportion being metabolised by the enzyme catechol-O-methyl transferase to O-methylated metabolites (Fig. 2). The mechanisms for 5HT and tryptamine have not been properly worked out but may well be similar.

Pharmacological Evidence

Reserpine and tetrabenazine and X-methyl DOPA deplete the brain store of NA and other amines and coincidentally with this an animal behaves as if it were depressed. Clinically, depression and even suicide are well known to occur in some patients on these drugs, particularly in high doses. Lithium, which is therapeutically active in mania, has a similar pharmacological effect in that it appears to deflect NA away from the receptor sites and into amine oxidation.

On the other hand, all drugs which elevate mood have been shown to increase the concentration of active NA at the receptor site. Drugs such as cocaine and the amphetamines do this simply by releasing the amine from the readily available pool on to the receptor sites, thus

having an immediately stimulating, pep-pill, type of effect and these drugs are much more effective in the neurotic types of depression than in cases of endogenous depression where it is suggested there may be a deficiency of a particular amine. The monoamine oxidase inhibitors (MAOI) and the tricyclic antidepressants such as Tofranil have a much more gradual effect.

The MAOI's, as their name suggests, act by inhibiting monoamine oxidase, as a consequence of which the concentration of NA and other amines in the deeply bound stores increase and also, by equilibrium, that in the readily available pool, providing more amine for release at the receptor site in response to a nervous stimulus. The tricyclic antidepressants, on the other hand, act by slowing up the reuptake of amine from the receptor site, allowing it to act on the receptor for a much longer period. Thus both groups of anti-depressants have a similar effect in increasing the activity of NA at the receptor site but by different mechanisms. E.C.T. which is the most effective treatment for depression has recently been shown by isotope studies to have a similar effect in increasing the concentration of metabolically active NA in the brain.

Most of this work has been done on NA but other amines, such as 5HT, are also affected when reserpine (depressant) or an MAOI (excitant) is administered. However, a lot of evidence suggests that it is particularly the concentration of free NA at the receptor site which is important for central excitation and possibly a decreased 5HT for sedation. For example, in the cat 5HT alone is increased by an MAOI and there is no change in behaviour. In the mouse there is a considerable increase in the level of NA as well as of 5HT and central excitation occurs. Similarly DOPA, the precursor of NA, will counteract the sedation produced by reserpine, 5HTP, the precursor of 5HT, having only a slight effect. On the other hand, if an animal is first exposed to cold, reserpine depletes the brain of NA but not of 5HT and sedation does not occur.

Clinical Evidence

The above evidence, though very persuasive, has come from animal experiments rather than clinical studies on the depressed patient. The problem here is the perennial one of measuring the functioning of a part of the brain in a living person. The nearest thing is the cerebrospinal fluid and there seems to be little doubt

that the concentration of 5-hydroxyindoleacetic acid (5HIAA), the major metabolite of 5HT is definitely low compared to controls. Following this the brains of people committing suicide, and presumably depressed, have been examined. One group reported that 5HT was low but unpublished work suggests that the amines NA, DA, and 5HT in the hypothalamus, caudate nucleus, and brain stem were normal. This, in fact, is not surprising as most of the monoamines in the brain are in storage sites and inactive. It is the small amount of free and physiologically active amine which is important. The concentration of metabolites is an indication of amine activity but unfortunately we have not yet got the techniques for measuring catecholamine metabolites in brain tissue. However, there is a suggestion that, as in the C.S.F., the brain concentration of 5HIAA is low.

As can be seen, one of the big problems is, if there is a deficiency of amines in the brain, which is the important one from the point of view of depression? Noradrenaline has so far been the favourite. 5HT is strongly fancied, but recently tryptamine has produced a strong run. Urinary tryptamine is abnormally low in depressives and the antidepressant effect of the MAOI's can be potentiated by feeding the amino acid tryptophan, which is the precursor of tryptamine. (Phenylalanine, the precursor of NA and 5HTP, the immediate precursor of 5HT are not potentiators.) Furthermore the antidepressant activity of MAOI's is associated with a much greater increase of tryptamine than any other amine. Going back to the laboratory, evidence from chickens, where the blood brain barrier does not block amine transit, suggests that substances, such as tryptamine, having the general formula $R.CH_2.CH_2.NH_2$ where R is a fat soluble and planar hydrocarbon are cerebral excitants. Depressant type amines have the general structure $R.CH(OH).CH_2.NH.CH_3$ where R is water soluble. Adrenaline is the most potent of this group. Evidence has been produced suggesting that the "excitant" amines act through a cerebral receptor identical to the peripheral tryptamine receptors, and the "depressant" amines via a receptor similar to the peripheral X-receptor. The suggestion is that a deficiency of tryptamine causes depression and an increase, elation. If this were so, a tryptamine-receptor blocker, such as methysergide, should benefit cases of mania and indeed reports from two independent sources indicate that it is very effective.

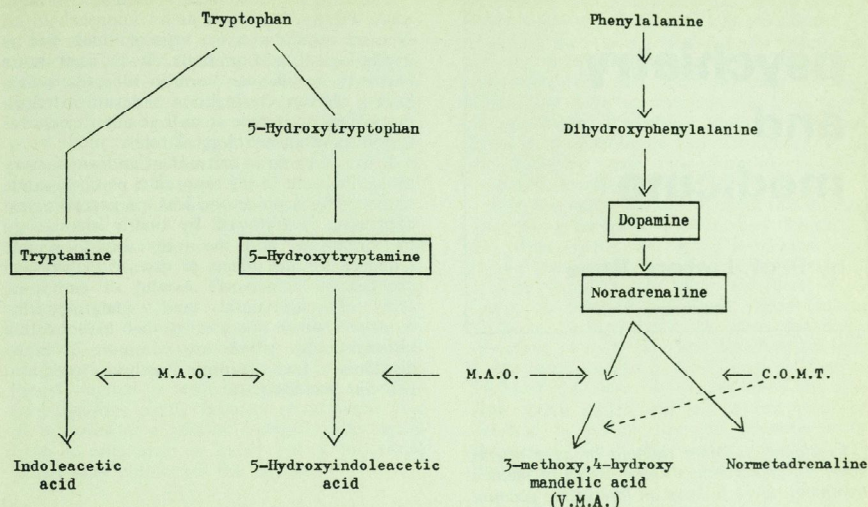


Fig. 1 Illustrating the four main monoamines (in boxes) with their precursors and major metabolites.

M.A.O. = monoamine oxidase.

C.O.M.T. = catechol O-methyl transferase.

summary

In summary, it is fair to say that there is definite evidence to support the amine deficiency hypothesis and that treatment designed to correct such a supposed deficiency has led to dramatic advances in therapy. However, there are many gaps. Some patients respond to one drug and others, apparently clinically identical, to a different one. Others are quite resistant. Perhaps it will not be too long before we know the types of depression, if any, which are due to an amine deficiency, the identity of the amine or amines responsible, and a more specific treatment for each biochemical abnormality.

Further Reading

- Recent Developments in Affective Disorders, ed. Coppen, A. and Walk, A. Brit. J. Psychiat. Special Publication No. 2, 1968.
- Dewhurst, W. G., in "Studies in Psychiatry". Ed. Shepherd, M. and Davies, D. L., London, 1968.

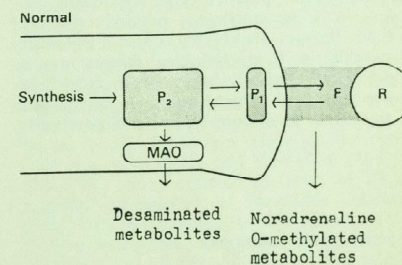


Fig. 2 Diagram of a sensory nerve ending. R = receptor site. F = free noradrenaline.

psychiatry and medicine

by Prof. Linford Rees

Psychiatry is often thought of as a science apart. In fact it enters every aspect of medical treatment. Here follows an interesting account, which is rarely technical, of the correlation between a patient's illness and his mind.

Psychiatry can be regarded both as a speciality and a generality. Its scope as a speciality is considerable as shown by the fact that nearly half of the total hospital beds are for psychiatric patients and some 15-25% of patients seen in general practice have psychiatric disorders or some important psychiatric aspect to their illnesses. Psychiatry is also a generality as psychiatric or psychological factors may be relevant and clinically important in most fields of medicine and surgery and it is the purpose of this paper to discuss this role of psychiatry.

Psychosomatic relations

As the word *disease* itself indicates, there are psychological aspects to every illness. Psychiatric disorders may co-exist with any physical illness. Psychological factors may act as causative factors in some illness or may be result or reaction to an illness.

The term psychosomatic is used in two main ways. Firstly, it is used as an approach to all illnesses insofar as every type of illness has its psychological concomitants. It is used more narrowly to denote certain illnesses which have a physical dysfunction or lesion in which psychological factors as well as other causative factors play an aetiological role.

It would be more convenient and satisfactory to use the term in the sense of a psychosomatic sequence for a process in which a psychological happening is followed by bodily changes in the organism, and the term somato-psychic sequence for the effects of disease or physical changes on a person's mental or emotional state. Psychosomatic and somato-psychic sequences often operate together to constitute vicious circles which are common in many disorders, for example asthma, cerebral vascular accidents, etc.

Patients' Attitudes

The patient's reaction to his illness and his attitude to doctors, nurses, and the necessity to attend as an outpatient or be admitted to hospital, may determine his ability to co-operate in treatment, and sometimes the degree of distress and disability associated with any illness.

Patients' Reaction to the appearance of early symptoms

Many patients, including those with cancer, exhibit a tendency to deny the early manifestations of the illness. This is of great practical importance and it may result in delay in seeking advice and, therefore, in instituting treatment. Patients who ignore their symptoms and postpone visiting their doctors for many months have been shown on the whole to be more unstable in personality than those who seek medical attention earlier (Henderson *et al.*, 1958). This is in contrast to the popular belief that people who are anxious, hypochondriacal or unstable are those who bother the doctor unduly early in their illness.

Doctor-Patient interactions

The doctor-patient relationship is the basis of clinical practice in every branch of medicine and surgery. It is safe to assume that patients reporting to doctors with symptoms are anxious whether they admit it or not. They will tend to worry about the underlying cause of their symptoms, how it will affect their well-being, working capacity or endanger health or life. The patient's anxiety feelings may be influenced by quite small items of the doctor's behaviour, e.g., his facial expression, tone of his voice and especially the way in which he communicates or not to the patient. The doctor's relationship with the patient may also be important. It is known that doctors who are social friends of patients may delay carrying out important examinations such as examination of the breast, vaginal or rectal examinations, or other investigations partly because of an inner fear of discovering a serious condition and partly from a reluctance to carry out a procedure which may embarrass the patient.

Patient's reaction to Diagnosis

This varies a great deal; some patients will be relieved to know where they stand, others will get anxious or angry with fate or blame the medical profession for being ill or incapacitated. Others, although having been told, may unwittingly deny its existence. Such a tendency to denial of symptoms and communicated diagnosis is not an uncommon phenomenon. Communication between the doctor and his patient helps to allay anxiety. If the patient is informed about various tests to be carried out and the reasons for doing so in terms he can understand, it will help to relieve undue anxiety.

Reaction to the course of the Illness

Patients react differently to different illnesses and their effects. Chronic illnesses associated with pain or disability with loss of working capacity may produce marked feelings of depression, anxiety, anger or hostility. The patient may react to a disability by accepting it

reasonably and at the same time try to develop other interests and skills to compensate for the disability he is now suffering from. Others will use any illness as an excuse to opt out of life's responsibilities, and they succumb to their illness and have an unnecessarily long period of invalidism. Sometimes patients over-compensate to disabilities and deformities in an unsatisfactory way by becoming resentful, truculent, hostile, spiteful and vindictive.

It is also important to remember that illnesses also have repercussions on families. Recently it has been shown that when a member of a family has a psychiatric illness there is an increased tendency for other members of the family to develop psychiatric illness concurrently or subsequently. In some psychiatric disorders or even physical disorders an interesting reciprocal relationship can occur between husband and wife. When one is ill the other feels much better and his or her needs are satisfied by giving care and attention to the ill person. When this person improves their partner characteristically becomes unwell.

Facing Death

There is considerable variation of opinion among doctors when to inform a patient that he is suffering from a fatal disease. A recent study showed that surgeons and radiologists were the most reluctant, whereas dermatologists showed the greatest willingness to inform patients they were suffering from a condition like cancer; this is understandable as skin cancers respond well to treatment. Whether or not to tell the patient that his illness is going to be fatal and when he should be told are all matters regarding which there is considerable divergence of opinion. Hinton (1966) interviewed 102 patients with fatal illnesses at the Middlesex Hospital throughout their stay in hospital until they died. He found that 30% never referred to death at all and regarded themselves as inviolable. However, about 70% were willing to talk about the need to face death and were greatly helped by discussions. The degree of distress and anguish experienced by patients depended on a number of factors. Surprisingly, religion did not seem to be a relevant factor. Older people accepted it more readily, as would be expected, younger people and those with dependents were much more distressed. In all these patients

they received a great deal of comfort from having someone to talk to and discuss the problems and their feelings towards their illness and inevitable death. Some doctors through no fault of their own have a natural reluctance to speak to patients once they know that they are dying. They will often avoid patients who have had a minimal contact with them. This is an understandable reaction but unfortunate for the patient. Hinton (1966) showed that the important need was for the content and frequency of discussions to be influenced mainly by the needs of the patient and not by the needs or fears or emotional reactions of the doctor.

Psychosomatic and Somatopsychic Interactions in various diseases

It is now agreed that many diseases are determined by a multiplicity of factors, some of these are predisposing, some are precipitating. When psychological factors play a predisposing or precipitating role in various diseases, which are conveniently termed psychosomatic or stress disorders, they usually operate in conjunction with other factors including genetic, constitutional and various physical factors in the causation of a particular disease. In psychosomatic disorders it is possible to demonstrate by clinical observation as well as under experimental conditions that emotional changes can precipitate attacks of the disorder both at its onset and during its course. Experience of various stresses during life is also correlated with the onset and with exacerbations of the illness in many of these disorders. Various stresses which are important in this respect include important happenings or changes in a person's life such as bereavement, illness or injury affecting a beloved person, interpersonal problems in marriage, at work, etc. Recently, carefully conducted studies have shown the close correlation between the appearance of a large variety of illnesses and the occurrence of life stresses. This has been confirmed both in retrospective as well as prospective studies. Holmes and Rahe (1967) showed in a retrospective study that illnesses did not develop in random fashion throughout the population but tended to affect certain groups of people, and that they tended to cluster around certain periods during a person's life. These were periods which a person felt were very stressful and were in some way or

another threatening or that their life pattern had undergone some marked change. In a recent prospective study Rahe and Ransom (1968) were able to predict the tendency for persons to develop illness by studying significant life changes occurring during the preceding year. They demonstrated that they were able to predict which persons in fact were likely to become ill they were able to rate the degree of life change in a fairly precise manner, and they demonstrated that not only illnesses which are usually termed psychosomatic but a very large variety of illnesses, including infective conditions, accidents and many other types of illness show a significant tendency to occur following a period of significant life change.

The following is a summarised account of various illnesses in which there is strong evidence that psychological factors play an important role either in terms of psychosomatic sequences or in terms of somatopsychic reactions. Space does not permit a detailed discussion of the evidence of the mechanism involved in these interactions. The author discussed in detail the complex interactions between allergic, infective and psychological factors in asthma and allergic disorders in this Journal (Rees, 1966).

(1) *Surgery*

Psychiatric disorders such as depressive states and anxiety states may exist concurrently in any patient suffering with a surgical disorder. Similarly, hysterical symptoms may be superimposed and may influence the degree of disability that the patient suffers. The patient's reactions to having the surgical operation, to undergoing anaesthesia, vary greatly and unfavourable reactions are influenced by the patient's personality and past experiences. Some patients develop a severe psychiatric disorder after an interval of some days after an operation. These post-operative psychoses are in some respects similar to post-partum psychiatric illnesses which also tend to come on after a symptom-free latent period following childbirth.

(2) *Orthopaedics*

The effects of anxiety in producing increased muscular tension can influence many ortho-

paedic disorders. Similarly, depression can increase the degree of disability and may also be responsible for the development of various bodily pains which are superadded to the orthopaedic lesion.

(3) *Plastic Surgery*

There is often a need for psychiatric screening of patients who request plastic surgery for sometimes a demand for plastic surgery may be determined by a patient's psychiatric illness rather than dictated by aesthetic or other needs.

(4) *Obstetrics*

A patient's reaction to pregnancy, the frequency and severity of vomiting, the development of malaise and the degree to which relaxation can be accomplished and ensuing difficulties in childbirth may be greatly determined by the person's emotional state. The "maternity blues" is a common transient depression which occurs in about 30% of women after childbirth. Post-partum psychiatric illnesses are usually schizophrenic or depressive in type and tend to come on during the cycle of the third week post-partum.

(5) *Gynaecology*

Both psychosomatic and somato-psychic sequences operate in conditions such as premenstrual tension, frigidity, dysmenorrhoea, vaginismus and menopausal disturbances. Operations, particularly those of significance to the feelings of femininity of the patient, such as hysterectomy or ovariectomy, may often have psychiatric sequelae, particularly in depression and anxiety symptoms.

(6) *Gastroenterology*

There is now well documented evidence that emotional factors operate along with constitutional and other factors in the genesis of peptic ulcer and disturbances of the small and large intestine including irritable colon and ulcerative colitis.

(7) *Cardiovascular System*

Apart from patients suffering from cardiac neurosis in which there is no organic disease,

it has been shown that certain forms of high blood pressure, coronary disease, cerebral vascular accidents and Raynaud's phenomenon and Buerger's Disease may be influenced by emotional tension. In many of these disorders there are important somato-psychic sequences which produce vicious circles which tend to perpetuate or exacerbate the disease.

(8) *Endocrine Disorders*

In thyroid disease, hyperthyroidism may sometimes be precipitated by stress and emotional shocks. Thyroid over-activity in turn produces symptoms very similar to those of anxiety states. Myxoedema produces profound mental changes, sometimes severe psychiatric disorders referred to as myxoedematous madness. In diabetes both psychosomatic and somato-psychic interactions may be important and greatly influence the success or otherwise of the patient's management.

The above represent only a selection of disorders in which psychological factors are important. The mechanism involved in psychosomatic sequences involves the autonomic nervous system which controls involuntary musculature, glandular functions and vascular reactions. Other mechanisms include changes involving hypothalamic - pituitary - adrenocortical mechanisms which can also influence the development of diseases. Similarly, effects on the locomotor system by increasing muscular tension may also contribute to the clinical picture in many medical and surgical disorders.

In conclusion, the sick patient must not only be regarded as a psychosomatic unity, but in order to achieve the most effective management and rehabilitation, social and psychological aspects must be taken into account as well as physical factors.

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Student Grants

The position must be made clear. Clinical medical students spend on average sixteen weeks a year more at "university" than students in other fields. This is an increase of 50 per cent. But the additional grant received falls far short of this. Other students can spend their sixteen weeks of vacation engaged in lucrative labour. Medical students cannot wander around hospital wards dressed in jeans and old clothes as is the custom among most brands of those being educated—we do not receive any grant for smart suits. Financially then, clinical medical students must enjoy a considerably lower standard of living than their counterparts in other faculties or even than their colleagues still learning pre clinical medicine.

We do not envy those in other professions. We realise that medicine is unique, that we must remain students for longer than other people. We do not think we should be given as much money as those already sited in professional jobs. But we do feel that clinical students should enjoy the same standards as pre-clinical ones. Too long have certain professions been exploited as "vocational."

Royal Free Hospital

We were pleased to note that the Royal Free Hospital Journal displayed Mr. Badenoch on its front cover. We think the trend of picturing Bartsmen on journal covers is a good one, and hope other hospitals take note.



photo by A. F. Cornelius

stress

by Anthony Newman Taylor

Stress afflicts all our lives. Here Anthony Newman Taylor talks about the biochemical changes observed when stressful situations appear.

If an animal is to be able to survive in the environment in which it lives, it must have the means to withstand stressful situations to which it is liable to be exposed. To combat these threats to its physical integrity, various mechanisms can be brought into play. These may be considered to consist of firstly specific local responses, and secondly as more general non-specific reactions. An obvious example of a local defence response is the reaction to infection—local inflammation, whose essential feature is leucocytic emigration to the site of the infection, and the elaboration of specific antibodies directed against the invading organism.

The non-specific response consists of a series of general metabolic changes, whose aim is to maintain the functional integrity of the organism as a whole, until the noxious stimulus has been removed or overcome.

The adrenal glands are known to play an essential role in the non-specific responses. The adrenal medulla increases its output of sympathomimetic amines, and these produce physiological changes which adapt the animal for "fight or flight" (Cannon). At the same time there is a 'marked increase' in adrenocortical secretion, but the mechanism by which this combats stress, and eventually helps to restore normal health to the animal is not understood. But it is well known that if the animal is unable to put up such an adrenocortical response, death may follow all but the least threatening situations.

Figure 1. Summarises the presumed pathways by which the nervous system co-ordinates with the endocrine system in producing these responses.

PSYCHOLOGICAL RESPONSE TO STRESS

The response to stress cannot only be considered in purely physical terms. Emotional stress can represent as great a threat to man as do some forms of physical stress. Equally, behaviour is affected by stressful situations, and abnormalities can develop which remain after the cessation of the original stressful stimulus.

PAVLOV

The Russian scientist Pavlov, who received the Nobel prize in 1903 for his research on conditioned reflexes in normal digestion spent the last thirty years of his life, until his death in 1936, studying "higher nervous activity", as he called it, in animals, particularly dogs.

This work convinced him that the four basic temperaments of his dogs approximated closely to those differentiated in man by Hippocrates, using as his criterion in typing them their ability to withstand imposed stress and conflict situations.

The first two types—the *strong excitatory type* (corresponding to Hippocrates choleric type) and the *lively type* (corresponding to the sanguine type)—were characterised by increased excitement and more aggressive behaviour in stressful situations. Whereas the lively dogs' reactions were purposeful and controlled, the strong excitatory types often became so wild as to become out of hand.

The other two types—the *calm imperturbable type* and the *weak inhibitory type* (corresponding respectively to the phlegmatic and melancholic type of Hippocrates), responded to stress with more passivity. But where the calm imperturbable type was stable the weak inhibitory type suffered a state of complete brain inhibition and "fear paralysis".

However, when subjected to more stress than they could cope with by their usual means of behaviour, the other three types of dogs responses also became inhibited, the less stable strong excitatory type before the more stable lively and calm imperturbable types.

Pavlov called this altered behaviour "transmarginal inhibition" which when the dog was unable to cope further with the particular stressful situation served a protective function. He distinguished three phases of increasingly abnormal behaviour.

The first he called the "equivalent phase" of cortical activity in which all stimuli, of whatever strength, resulted in a quantitatively similar response.

Following ever stronger stresses this "equivalent phase" is followed by a "paradoxical phase" in which weak stimuli produce livelier responses than stronger stimuli. Finally in the "ultraparadoxical" phase Pavlov found that positive conditioned responses switch to negative ones and *vice versa*. For instance a dog may show affection for the attendant it previously hated and hatred for its formerly loved master.

ACUTE WAR NEUROSES

A similar type of behaviour to Pavlov's dogs' transmarginal inhibition was observed in acute neuroses studied during the last war. When subjected to the stress of combat for sufficient length of time, it was found that nearly all infantry soldiers eventually succumbed to what is called "combat exhaustion".

The typical progression of symptoms described by Swank, based on a study of 5,000 Normandy combat casualties, the majority of whom were American, shows a striking resemblance to the changes found by Pavlov. The first evidence of combat exhaustion, very similar to the equivalent phase, was the loss of "ability to distinguish the various noises of combat. They became unable to tell friendly from enemy artillery". This was followed by a state of hyper-reactivity resembling the "paradoxical phase" in which they were "irritable and frequently blew their tops, and over responded to all stimuli".

Thus there are sufficient grounds for believing that stressful situations, if too severe or too prolonged, can result in permanent disturbances of behaviour. The possibility also exists that the body might not differentiate between physical and emotional stress in its defensive responses. Furthermore a relationship could exist between the affective disorders and the mechanism underlying the normal responses to stress.

These ideas provided a theoretical direction for experimental observations of biochemical changes in various psychological and psychiatric disturbances. Amongst the biochemical changes most widely studied have been alterations in adrenocorticosteroid production

THE ADRENOCORTICAL RESPONSE TO PSYCHOLOGICAL STRESS

Much experimental work has demonstrated that adrenocorticosteroid changes similar to

those following physical trauma or infection, occur during emotionally stressful situations.

For instance, Price found that in 24 patients admitted to the Walter Reed hospital the following mean plasma 17 hydroxycorticosteroid levels were found.

Normal	12 microgms/100 ml
On admission	21 microgms/100 ml
Few days before operation	15 microgms/100 ml
Pre-operative day	18 microgms/100 ml

Similar findings were seen in Harvard boat race crews. On the day of the race, increases as great as eight times the normal in the urinary output of 17 hydroxycorticosteroids were found, but equally strenuous rowing in the absence of competition was not associated with any significant increase, suggesting that the increased steroid output was associated with emotional involvement in the outcome of the race rather than the exercise of rowing itself.

These studies and others have suggested a correlation between emotional stress and adrenocorticosteroid output. In this form of stress, conscious perception is clearly necessary to produce the response, whereas in other situations, such as surgical trauma under anaesthesia, such perception cannot be necessary. It has been suggested that the conscious response to stress could travel from the cerebral cortex to the visceral brain, particularly to the amygdaloid nucleus and the reticular activating system, and from thence to the hypothalamus to cause corticotrophic releasing factor release; although it has been shown in animals that corticosteroid responses to stress can still occur after destruction of the hypothalamus, presumably due to release of corticotrophic-releasing-factor—like substances from areas above the hypothalamus.

ADRENOCORTICAL ACTIVITY AND MOOD CHANGE

The relationships between adrenocortical activity and mood change have been studied from two main points of view: 1 the changes in adrenocortical activity occurring in psychiatric disturbances and 2 the psychiatric symptoms occurring in adrenocortical disorders.

1 THE EFFECT OF MOOD ON CORTICOSTEROIDS

Evidence of abnormal corticosteroid activity has been found in several primary psychiatric disorders.

In *anxiety states* some patients have been found to have corticosteroid levels persistently raised to levels similar to those found on otherwise healthy subjects exposed to emotionally stressful situations as described above. Some workers have found an increased rate of disappearance of exogenous and labelled cortisol from the plasma suggesting that in these patients cortisol may be both produced and metabolised at a greater rate.

Studies of *depressive patients* have shown corticosteroid levels to be consistently raised (in one study 60% higher than in normal controls), and that the extent of the rise correlated with the severity of the depression. Clinical improvement is accompanied by a fall in plasma steroid levels.

In a recent preliminary communication which reported studies of pituitary adrenal function in three severely depressed patients Butler and Besser found many of the biochemical features of Cushing's syndrome, showing elevated levels of plasma and urinary corticosteroids, a disturbed diurnal rhythm and adrenocortical resistance to dexamethasone suppression. The biochemical abnormalities disappeared with successful treatment of the depression. Other investigations have shown an abnormal glucose tolerance curve in depressive patients similar to that which may occur in Cushing's disease. Other workers, however, have not been able to confirm this.

Mania has not been well studied in this respect, but in a study of a woman with manic depressive psychosis extending over a year a persistently low level of corticosteroids was found during a manic phase lasting several months. The steroid output returned to normal with the loss of manic symptoms. Another worker found low corticosteroid levels in a cyclothymic girl during periods of mild elation, while the onset of periods of depression was accompanied by a marked rise in these levels.

Several studies in *schizophrenic patients* have demonstrated a marked elevation of corticosteroid levels in acute schizophrenia in patients showing emotional turmoil, while in chronic schizophrenia with no disturbance of affect steroid levels were in the normal range.

It is hard to resist the conclusion that altered adrenocortical activity is associated with the emotional state of the patient, rather than the particular type of the disorder; that "emotional arousal" is the effective stimulus rather than the particular type of emotional response evoked (e.g. anxiety, fear, depression). This correlates well with the findings in the Harvard boat race

crew that the determining factor was the degree of general emotional involvement.

Thus these results suggest that increased adrenocortical activity is secondary to the emotional state induced by the primary psychiatric disturbance. However, in the case of adrenocortical hyperfunction or when exogenous corticosteroids are administered the converse situation seems to exist—changes in psychological state appearing to result from abnormal corticosteroid levels rather than to cause them.

2 THE EFFECT OF CORTICOSTEROIDS ON MOOD

The adrenocortical hyperfunction of **Cushing's syndrome** is almost always accompanied by mood change, mainly depressive in type, but also emotional overreactiveness. For example for one patient listening to the radio, and for another going to the cinema were intolerable, as they were too deeply moved by the experience.

Successful treatment of Cushing's syndrome leads in nearly all cases to psychological improvement. In one series a complete parallelism was found between patients treated with complete adrenalectomy and total recovery from psychiatric symptoms.

Mood changes are also frequently found following A.C.T.H. and cortisol administration. In contrast to Cushing's syndrome in which a high incidence of depression is found, exogenous hormone administration is associated with a high incidence of euphoria, although depression may occur.

Mood changes are also commonly found in the adrenocortical hypofunction of Addison's disease and hypopituitarism, where it most often takes the form of apathy and indifference.

CONCLUSIONS

It is difficult to avoid the conclusion from the first group of studies, as has been stated, that the altered adrenocortical levels are consequent upon mood changes involved in the primary psychiatric disturbance. However, the abnormalities of adrenocortical function might conceivably contribute secondarily to the clinical manifestations of the affective disorder.

For example some workers have suggested that the early morning waking, characteristic of

endogenous depression occurs as a result of the very high and abnormally early peak of plasma cortisol seen in this condition. However, the second group of studies tend to suggest a more central rôle for the steroids in mood changes. Possibly the depth of an individual's emotional experience may be partly determined by adrenocortical function. This concept is supported by the emotional changes found in Cushing's syndrome and Addison's disease: whereas in the former listening to the radio was described as an overwhelming experience, in the latter apathy and indifference were found. It is certainly true that in stressful situations such as examinations and competitive sport one's involvement is considerably heightened, and as Dr. Johnson once cynically remarked "if a man knows that he is to be hanged in a fortnight it concentrates his mind wonderfully".

On this basis it would seem reasonable to postulate a mechanism such as that shown in figure 2, in which corticosteroids play a rôle in the depth of an individual's emotional involvement. Thus stressful stimuli in the environment, primary psychiatric disturbances and primary endocrine disorders, by stimulating the mechanism at different points could all equally lead to mood changes, whose exact nature (whether anxiety or depression) would depend on many other factors, but whose fundamental feature would be altered "emotional arousal" or involvement.

The author gratefully acknowledges the help and encouragement given by Dr. P. W. P. Butler in the preparation of this article.

Figure 1

Fig. 1. Summary of presumed pathway linking nervous system with endocrine system.

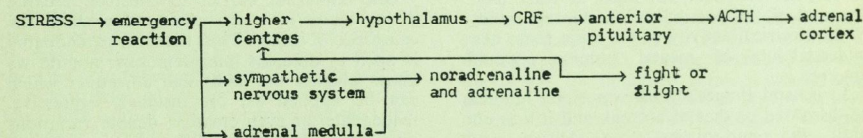
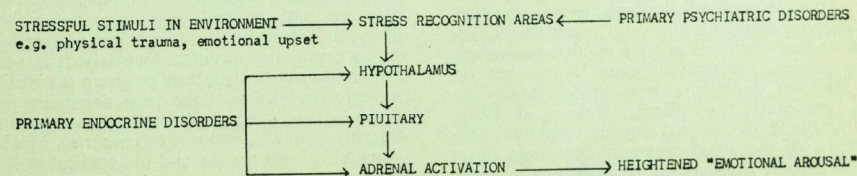


Figure 2

Fig. 2. Scheme of possible interaction between central nervous and pituitary adrenal function in stress.



brain waves and psychiatry

There are many ways of assessing mental disturbance. Dr. Margerison looks for clues in the electrical wave pattern of the brain.

by Dr. J. H. Margerison

One likes to think it was no coincidence that Hans Berger, who in 1924 recorded the electrical activity of the brain in man, was a psychiatrist. He produced a series of publications between 1929 and 1938, nearly all of which were under the same title "Über das Elektroencephalogramm des Menschen". At an early stage in his career he had been associated with Oscar Vogt and Korbinian Brodmann and was much concerned with the localisation of cerebral function. He must at least have dreamed of the possibility that through study of the electrical activity of the brain some new understanding of mental processes would emerge.

In general Berger's work was either ignored or dismissed as that of a crank and it was not until the mid-thirties that Adrian and Matthews in this country provided conclusive confirmation of his observations. Psychiatrists, then as now, were anxious to find a path from the descriptive to the scientific phase of their discipline and greeted the advent of clinical electroencephalography with enthusiasm. During and immediately after the last war EEG apparatus was installed in many mental hospitals, the first being Runwell Hospital, Essex, which is now attended by Bar's students.

Thus electroencephalography became the part time preoccupation of several psychiatrists and neurologists who constituted the first generation of clinical neurophysiologists. A number of inevitable discoveries were made, largely as a consequence of simply looking at EEG tracings in this or that organic condition, and many of the gifted amateurs concerned have since risen to positions of eminence in their primary specialities.

A second generation of professionals, whose members have been adequately trained in the sciences basic to electrophysiology, is now well established in some countries, notably the U.S.A., and is slowly emerging in Great Britain. The question arises as to whether they will be able to harness the advances in modern technology, many of which have accrued from developments in solid state physics, in order to improve our understanding of the living human brain. The problem is not so much to locate and identify lumps of damage or diseased tissue as to find objective, quantitative measures to describe the behaviour of a brain which, although not the seat of manifest pathology, may none the less be regarded as malfunctioning. Some of us have abandoned psychiatry on the grounds that there is not a sufficiently well established body of fundamental knowledge to justify therapeutic action, but are we barking up the wrong tree in our search for a better understanding of cerebral function through a study of the electrical activity of the brain?

research barrier

One important barrier to effective research in psychiatry is a lack of precision about the categories of illness. Thus the term psychopathy is open to different interpretations; nor do we know whether the additional adjectives which can be applied as, for instance, aggressive, inadequate, or even creative, denote variations on a theme or in fact differentiate conditions which are not truly of the same genre. Hence EEG studies in this territory have usually been carried out on a class of people whose behaviour has been anomalous in a particular and identifiable way. The EEGs of murderers have been contrasted with those of non-murderers, the EEGs of Remand Home boys with a record of violence compared with those of inmates without such a record. Group differences have been found but the observations are not of real help in solving the differential diagnosis of the patient presenting with a psychiatric problem. Similarly, it is not easy to carry out satisfactory work on the EEG in depressive illness if the term depression is imprecise and carries different meanings in different hospitals, cultures or countries. Much is made by both the lay and the medical press of the steady increase in the incidence of psychiatric illness which is variously attributed

to a number of ill-defined stresses, often of a socio-political nature. The point much more rarely made is that doctors require diseases in order to sustain their livelihoods. It would be interesting to know whether an increase in psychiatrists leads to, or follows, an increase in mental disability in the community. There seems no reason to suppose that psychiatrists are immune to Parkinson's proposition.

Given the difficulty in defining the form of psychiatric illness to be studied, EEG information may none the less be useful if it can be supplied in a quantitative form which admits of comparison with some other objective variable. The biochemist who is, for example, interested in possible changes in electrolyte balance in effective disorders faces the same problem as the electroencephalographer. Should there be a priori grounds for relating EEG changes to changes in water and electrolyte metabolism, then joint studies can usefully be mounted even on an ill defined population of psychiatric patients. Significant correlations may emerge between EEG changes and changes in biochemical variables which can be used as a basis for refining the clinical category. It may then be possible to show that one group of depressive subjects, said to be characterised by retardation, differs from another of non-retarded depressives. If an index of retardation is available then the cross correlation studies can be extended to include the psychiatrist. In these circumstances the particular value of the EEG contribution is that it can supply an objective index of change in cerebral function. Once this central fact is appreciated then the relevance of EEG studies for the assessment of drugs which may affect the brain, and of so called psychotropic drugs in particular, becomes undeniable. Indeed there is a strong case for including quantitative EEG studies in the preliminary screening of any new preparation which might affect the human brain.

subjective

The nigger in the wood-pile throughout the arguments offered above, is the assumption that quantitative statements about the EEG are in fact easily available whereas in general this is far from being true. Most EEG studies of psychiatric material have relied upon the use of highly subjective pattern recognition techniques by human observers. Thus very often the EEG assessments have been at least as suspect as the clinical.

Over the last decade, however, a number of

quantitative EEG studies have emerged. These have involved fairly massive data reduction as, for instance, by confining attention to rhythmic components, using a special device to analyse the EEG by measuring the amounts of activity at different frequencies. Similarly, estimates of the number of spikes and of the duration of spike and wave discharges have been made by hand on the EEGs of patients with epilepsy. Such techniques are extremely laborious and time consuming. They have none the less yielded useful information and helped to provide a framework for the developments which are now possible as a result of the availability of computers. In essence a computer facility allows us to deal with a quantity of electrophysiological information which is so great as to preclude analysis by other means. Should we require, for example, to make accurate statements about a wiggly line which is varying in voltage as a function of time, we may need between 100 and 1,000 measurements of the ordinate (voltage) per second. The ordinary clinical EEG may well run for upwards of half an hour and involve 16 channels of information!

objective

If in fact we are able to collect data of this type satisfactorily (On or Off Line dependent upon the problem), analyse them and present the results in numerical form, a whole new range of exciting possibilities arises for the use of the EEG in psychiatric research. It may ultimately, for example, enable us to categorise both so-called normals and psychiatric patients in an objective and meaningful way.

A precise description of the electrical behaviour of the brain might even supersede existing classifications and lay a realistic scientific basis for psychiatry. Similarly the effectiveness of treatment could be accurately assessed by reference to the changes brought about in the EEG. These might prove much more reliable measures than subjective estimates of mood and/or behaviour by clinicians whose judgements must be affected by their own current emotional status.

There is another type of EEG information which is already promising to be valuable. This involves the use of simple laboratory computers which enable small electrical signals to be confidently distinguished from background noise, and thus facilitate the identification of many different types of responses which can

be evoked from the brain. Some of these are localised and specific to the form of stimulation, as for example, those recorded over the occipital cortex in response to a flashing light; others are much less specific. During different stages of sleep—and the EEG is certainly the most sensitive index we possess of fluctuations in state of awareness—aroused responses can be recorded which appear to be of essentially the same character and distribution, irrespective of the type of stimulus applied. Such responses can be used to determine whether or not auditory perception in a retarded or psychotic child is blocked by a defect in the peripheral auditory mechanism.

expectancy wave

More recently, Grey Walter and his colleagues have demonstrated a so called Expectancy Wave which appears when a subject is expecting a stimulus which will require him to take action. Thus, when a ball is thrown, an EEG response can be demonstrated during the period of preparedness while the subject waits to catch it. There is already evidence to suggest that this mechanism may be impaired in various ways in different mental states, as, for example, when the subject is "anxious" and perhaps, though this is much more speculative, in some psychiatric conditions.

It has been extremely difficult to present these thoughts and speculations about the possible role of EEG in psychiatry without reference to electronics and mathematics as also to avoid neurophysiological jargon. Two general technical points can perhaps now be risked. The first is that an EEG machine is no more than a collection of biological amplifiers which are able to deal with signals of the order of microvolts (compare the EKG signal). There is therefore an increasing tendency for the clinical neurophysiologist to collect additional electrophysiological information *pari passu* with the EEG. This can aid both the collection of data and their subsequent analysis, processing and presentation. The importance of this procedure can perhaps be better appreciated from the fact that EEG signals, more especially certain types of abnormal signals, do not occur randomly with respect to the respiratory and cardiac cycles. One general situation in which multiple information on one recording chart might be very useful is in the intensive care unit. This in turn, however,

involves the development of rather sophisticated transducers and their interfacing with the apparatus. The clinical neurophysiologist is therefore necessarily concerned with clinical measurements and should receive a training which will enable him to make sense of the information which is collected. The second technical point is that the growth of telemetry is bound to extend the range and quality of EEG investigations. This may be of especial relevance for psychiatry where it is increasingly important for observations to be made outside the confines of the laboratory, and for the external environment to be varied in a manner appropriate to the condition under study. It is, for example, perfectly possible to record the EEG of someone who is driving a car, or who is engaged in some other form of activity.

For the present, the main clinical use of the EEG in psychiatry lies in the investigation and diagnosis of organic problems. EEGs, and more particularly serial EEGs, can be of considerable practical value in the differential diagnosis of dementia arising in the presenium or senium and can also help to confirm a diagnosis of toxic confusional state. Epilepsy and the possibility of epilepsy arises not infrequently in clinical psychiatric practice. The EEG can be of especial value in the latter circumstance but this topic would require a separate communication.

outlook

There is already a considerable body of useful research material on psychiatry based upon EEG studies, but this has not yet acquired the status of routine clinical use. It is, however, my belief that if adequate finance can be provided to supply the human skills and the specialised technology which are needed, then within the next 25 years the study of the electrical activity of the brain could well provide the scientific basis upon which clinical psychiatry may advance. Equally it is a matter of some regret that the current requirements for the enrolment of medical students and the subsequent preclinical and clinical curricula are unlikely to provide the type of medical personnel necessary to achieve this desirable end. Meantime the clinical neurophysiologist is still liable to be labelled a crank. He is in the good company of Hans Berger and takes some comfort from the fact that in medicine, as in mechanical engineering, without cranks there can be no revolutions.



Photo by Julian Toms

ancient charterhouse

by Clive Froggatt

Ancient Charterhouse separates the Medical School from one of our Nurses' homes, yet it is much older than either. Clive Froggatt explores its history.

Have you ever been in College Hall and looked south-west over to Ancient Charterhouse and seen those well preserved buildings with their surprisingly uniform russet tiled roofs—and the clock tower? It takes up two sides of the Square of the Medical College but how many people know anything at all about those buildings: or have considered visiting what can be seen as some of the finest examples of Tudor and Elizabethan architecture in inner London today?

It was in 1371 that Sir Walter de Manny bought the land, on which Charterhouse was built, from St. Bartholomew's Hospital. Here he founded a Carthusian monastery in memory of the victims of the Black Death who were buried there.

Many famous and some infamous names have since been connected with Charterhouse. Sir Thomas More is thought to have studied at the Monastery before its Dissolution in 1537. Then, the Monks were all executed, the old Chapel and most of the Great Cloister were destroyed and the Master's Court built from the stones in Tudor style. This is now the only Tudor house still remaining in inner London.

Sir Edward (later Lord) North then had the property, followed by the Dukes of Norfolk.

The Ridolfi plot (in support of Mary, Queen of Scots) was hatched at Charterhouse in 1571 which, amongst other things, cost the Duke of Norfolk his head.

In 1611 Charterhouse was purchased from the Howard family by Thomas Sutton, Queen Elizabeth's Master of Ordnance in the North of England, who endowed it as a school and home for 80 men pensioners.

In 1872, the school, Charterhouse, was moved to Godalming and later the school site was used by Merchant Taylor's School who subsequently sold the site to St. Bartholomew's Hospital for the Medical College.

The maximum number of Brothers is now just under 40, the youngest pensioner at present being 65 years old and oldest being 95 years old.

In the early 19th Century, Blove undertook the restoration of Charterhouse but, regrettably, his good intentions were not altogether satisfactory and the German fire-bombs of World War II were an unusually presented opportunity for the most careful re-restoration so successfully completed by Lord Mottistone and Mr. Paul Paget just over 10 years ago. These two architects obviously went to great length to give a real idea of threefold history of Charterhouse—as a Carthusian monastery, a Tudor house and a Jacobean home for elderly gentlemen.

Most of the walls facing the Square of the Medical College are post-Reformation except a portion about 25 feet long in the corner on the West side of the Square, which dates back to the 14th Century. Most of the west side is referred to as Queen Elizabeth's Walk—unlike

some obstetric advice

from Robin Rayner

As the fifth year students leave to start their first month of midwifery they might benefit from the following advice which is offered to them by Joseph Hopkins, M.D., Physician Accoucheur to the Westminster Lying-in Institution.

so many of the beds in which the great lady is reputed to have slept and probably did not, she did almost certainly take walks along this cloister since she spent the first few days of her reign there and subsequently stayed there three other times during her reign. King James I also spent the first days of his reign here.

The clock tower rises above a small Chapel, used by Brothers of the community for their worship. The interior of the Chapel was formed from the chapter house of the monastery. The north aisle was built in 1613. Looking to the back of the Chapel, one may admire a beautiful early 17th Century carved screen and organ gallery. Also in the Chapel, near the Altar, is a fine memorial to Thomas Sutton, who was interred in Charterhouse Chapel on December 12th, 1614, the third anniversary of his death.

On the south side of the Square are the kitchens of the Hospital, now fully modernised and the Brothers' Library which used to be the Monks' Frater.

All other parts of Charterhouse are well worth seeing especially the Great Chamber, with its magnificent painted chimney-piece and the Washroom Court around which one can still see the walls of the old monastic buildings still remaining above ground.

Charterhouse may be visited by arrangement with the Registrar or by joining the regular guided tours every Wednesday afternoon at 2.45 p.m. sharp.

I wish to express my thanks to the Registrar of Charterhouse for his help in the production of this article.

"A general knowledge, professional talents, public and private character, must all concur to attain an excellence in physic; but more especially in Midwifery is our conduct observed.

enlightened female

"Consider the sex, in excruciating pain imploring our assistance, not only as individuals but as professional men! Likewise, regard the delicate feelings, and refined sentiments of mind of an enlightened female, the ornament of society, from whom, under Providence, we derive our temporal origin, and greatest secular happiness!

"Further, heaven only knows the extent of intellect conferred upon that being about to be ushered into life; the benefits mankind may derive from its exertions; the wonderful discoveries it may make which have hitherto evaded the research of science! It may be superior to HIPPOCRATES, NEWTON, or HARVEY: therefore claims the application of every mental and personal ability we possess, with all the means of preservation, both for the parent and the child.

secrecy and chastity

"In the Obstetric science, secrecy and chastity are points of importance. What woman will disclose her mind to a man, in whom she cannot fully confide? Or, what husband will apply to one of an immoral character to assist his wife in travail? As the life of all that is held most dear to him, in a temporal sense, is given up to the practitioner's care. We should ward against every sinister view, or impure end, with respect to our tender charge: as the most laudable motives ought to actuate every feeling of humanity in aiding into this world a succeeding generation.

steady perseverance

"Respecting the conduct of attendants during parturition, we should exhibit a superiority over ignorance or inaccuracies, liable to be met with in Nurses official, or other persons; not by a pointed disgust, open negligence, or an austere distance, but by an affable and steady perseverance in those means experience dictates; especially as a degree of reputation depends upon that class of people.

"It is incumbent on us, as professors of so respectable a science, to exhibit an example of humanity and true benevolence, particularly towards other practitioners. Our general con-

duct in the female society should be influenced by honor, integrity, and great condescension. Liberality being the ornament of our profession."

Hopkins gave this advice in his book "The Accoucheur's Vade Mecum". I have a copy of the seventh edition of this work—it was published by Messrs. Highley and Con of 174 Fleet Street in 1820, it cost 10 shillings and sixpence and was of some two hundred and thirty pages. The book was designed to supplement a course of lectures with cases (cost four guineas) or without cases (two guineas).

He also listed certain regulations for pupils on his courses:

"No Gentleman who is called to attend a labor, can be permitted to take with him another, nor can he send any one in his place."

discretion

Another one calls for discretion:

"In attending labors it is particularly requested, that pupils avoid all conversation tending to excite apprehension in the patient, such as descriptions of bad cases, the state of their experience in obstetrical subjects, anatomical dissection, etc."

middle age

Hopkins also gives details of the personal qualifications necessary for one to become a successful obstetrician:

"The middle age, a capability of fatigue, a small hand with strong and flexible joints, a sound intellect, a composed mind, and a discreet, sober, cheerful, and human disposition."

Had he foreseen today's fashions he might also have stipulated that "nature's vesture as applied to the head of a Gentleman should be worn short!"



retirement of Mr. George Cowan

George Cowan retired at the end of March, and so ended an association with the Dental Department of 40 years.

He is an Irishman, born in Dublin and educated at Trinity College. He qualified M.B., B.Ch. in 1924, and also that year gained his B.A. after reading Political Economy. After finishing his dental studies the next year, he qualified B.D.Sc. and subsequently became a Demonstrator of Bacteriology at Trinity Col-

lege. Feeling the need of wider horizons he decided to leave Dublin and so came to London. There he entered private practice and joined the Dental Department in 1929 as a Clinical Assistant. In 1930 he was appointed to the Staff as an Assistant Dental Surgeon working with Mr. Atkinson Fairbank. From the outbreak of war, he served in the E.M.S. being in charge of the Dental Department and from 1941 he looked after the Bart's patients at Friern Hospital, known to so many old Bart's men as "The Hatch", until their return to London.

When the Faculty of Dental Surgery was instituted by the Royal College of Surgeons he was made F.D.S., R.C.S.(Eng.) in 1948. All his professional life he had been deeply interested in the bacteriology of the mouth, and he also engaged in a Research Project with the late Professor Franklin on the effect of trauma on the Keratinisation of the gums. He contributed articles on various subjects to many professional journals. Before the war he was Dental Surgeon to the British Dental Hospital, but after the war his professional life was divided between a large private practice and Bart's. He was a Fellow of the Royal Society of Medicine, as well as a member of the British Dental Association and the Hunterian Society.

He had other interests. He was the Chairman of the Society of Friends of the Hebrew University of Jerusalem, who, with American co-operation, founded the Dental School there. He was also a member of the Independent Television Authority—he had a great interest in the theatre—he was a lover of Georgian silver and furniture, and had a high appreciation of pictures.

George Cowan will long be remembered for his kindness and his modesty—not only to his patients—but to all those around him. In the Department his juniors could always turn to him for wise counsel and advice, in the knowledge that he would be ready to help and give them his support. He had many friends and before leaving a Cocktail Party was given for him in the Guild Room where they had an opportunity to thank him and wish him well in his retirement.

He has returned to the land of his birth, where he will be occupied with the Georgian Society in Dublin, and he categorically states that he will have no further interest in teeth except those of the horse, the salmon and the garden rake.

I.D.C.

editors 1893-1968

We apologise for the omission of W. M. KEYNES from our list of past editors in the October issue. Mr. Keynes was editor in 1946, and his name should have appeared between those of L. E. McGee and M. J. Linnet, similarly, Dr. ALFRED WHITE FRANKLIN was editor from 1929 to 1931, and his name should have appeared between those of A. A. Miles and W. S. Baxter.

ANNOUNCEMENTS



Engagements

DOYLE—BETTS—The engagement is announced between Dr. Patrick T. Doyle and Miss Judith R. Betts.

PATERSON—FIELD—The engagement is announced between Mr. Ian Charles McShiels Paterson and Miss Sharon Maxine Field.

STEPHEN—FERGUSON—The engagement is announced between Dr. Ian Bruce Murray Stephen and Dr. Ann Ferguson.

Deaths

BARNESLEY—On September 11, Major-General Robert Eric Barnesley, C.B., M.C., M.B., B.Ch., R.A.M.C., aged 82. He qualified in 1912.

HODGES—On September 10, Mabel Frances Hodges aged 79, former Ward Sister at St. Bartholomew's Hospital.

HUGHES—On September 4, Dr. Tom Evans Hughes, M.R.C.S., L.R.C.P. He qualified in 1942.

LOVATT EVANS—On August 29, Sir Charles Arthur Lovatt Evans, D.Sc.Lond., F.R.C.P., F.R.S., aged 84.

THOMAS—On September 7, Eric Waldo Caryl Thomas, M.D., M.B., B.S., M.R.C.S., L.R.C.P., M.O.H. He qualified in 1921.

VAILE—On September 2, Dr. Thomas Burdock Vaile, M.R.C.S., L.R.C.P. Qualified 1913.

BATEMAN—On August 26, Dr. C. H. Bateman, M.B.E., M.R.C.S., L.R.C.P.

Appointment University of London

The title of professor of environmental medicine has been conferred on Dr. P. J. Lawther in respect of his post at St. Bartholomew's Hospital Medical College.

Royal College of Surgeons of England

The Hancock Prize was awarded to R. J. Horton of St. Bartholomew's Hospital Medical College.

Change of Address

The new address of Dr. Richard Langton Hewer will be:—1, Cliff Court Drive, Frenchay Common, Bristol, BS 16. Telephone: 654905.

Dr. and Mrs. P. D. Mulcahy will be living at 15, Thorn Park, Mannamead, Plymouth. Telephone: Plymouth 62525.

Dr. and Mrs. Travers Grant are now living at Dobbins, Whitehall, Ifield, Crawley, Sussex. Telephone: Crawley 23305.

Marriage

POWLES—MEYERS—Dr. Trevor James Powles and Miss Penelope Margaret Meyers were married on July 27, 1968, at St. James Church, Durban.

scientology

by

John and Gillian
Vanhegan

Scientology is deemed unacceptable to society. Does this cult threaten our civilisation as Christianity threatened Rome? Here is a report.

By Saturday, August 31st, the Scientologists at St. Hill Manor, East Grinstead, Sussex, were fully prepared for the flood of public interest engendered by the *Daily Mail* advertisement of their Open Weekend. There were over a 100 visitors cars in the car park when we drove up.

From there we admired the one storey 20th century castle built by the Community. It was in this building that we were shown their film called "Affinity".

"When you like someone, you want to be with them; you want to *BE* them." The five stages of relationship were: Affinity, Disinterest, Dislike, Deception and Desire to Kill. . . . The film had pounded its message for a full half-an-hour. Now we could see the white-walled room and the plaque saying: "You can skimp through now but one day you might meet Ron and he could ask you some embarrassing questions".

That Lafayette Ron Hubbard is the originator of this way of life or religion is common knowledge. However, the aims of Scientology are rather better concealed.

Next we hurried down the drive for a seat in the chapel to hear "The Talk". The meeting was held in an attractive hall which had wooden beams and a bust of L. Ron Hubbard

at the far end below a raised dais festooned with flowers, a blackboard and a chart. After being given a brief introduction, the Clear, John MacMaster, strode confidently into view. He may be known to some for the television interviews he has given. He informed us that although he might be mistaken for being a little "pretty", he had at different times been a tennis, golf and athletics champion in South Africa. (The Scientologists have a very strong establishment in Johannesburg and we hope to report on this late next year.) He reminded us of Einsteins' Theory that energy and matter are inter-related and that therefore where electrical brain waves are occurring, there is a continuous flux of electrical resistance. His conclusion was that individual and world problems could be solved by influencing the natural waves normally occurring between people. He attempted to support this idea with amusing anecdotes which were of dubious relevance to this preposterous telepathic assumption.

offer

What Scientology Offers *You*?

Regarding the Scientology Course, we gather that it is a process of unplugging oneself from ones former associates and of becoming completely independent. All preconceptions and prejudices are removed, the unencumbered mind is then processed (at the cost of £600 for a 12 week course), and the individual returned to Society to spread the new outlook. This frame of mind may be sufficient to overcome the most malignant cancer, split formally satisfied families, create peace or just bring personal "Release". Next we were shown the Scientology Scale.

scale

This was a gradation of various states of mind from negative to positive:

- 40 Enthusiasm.
- 30 Conservatism.
- 25 Boredom.
- 20 Antagonism.
- 1.0 Fear.
- 0.5 Grief.

—3.5 Needing approval from other people. We were not told the highest rating (100), but it was the height of being.



Ron Hubbard (right) in action

This may be the reason why the Minister of Health objects to unrestricted immigration of Scientologists on educational grounds.

clear

At the castle there was an exhibition, showing pictures of "famous" personalities, nearly all American, who had reached the state of CLEAR and peace with themselves and the World. There were plasticine models denoting the Scientologist's scale and numerous literary works by L. Ron Hubbard. The students are taught to release themselves in forms of creative art and their works were on view.

disturbed

We maintained a broad-minded approach to Scientology, but were denied the opportunity to question or discuss. The Scientology scale for example appears socially disruptive. John MacMaster said that it was better to be schizophrenic than apathetic, because at least it showed a positive personality. He added that it is often impossible to communicate with some psychiatrically disturbed people, we wondered how this could be a preferable state to apathy. We found the ideals of Scientology, which envisage world unity and peace, totally acceptable, but the means of attainment totally deplorable. One hears such dreadful stories of personality changes and marital break up amongst Scientology students that the cult is just not acceptable by society.

Saint Hill is open every weekend between 9.30 a.m. and 6.30 p.m.

information

*Parties every Saturday night at 8 p.m.
For further information contact: Director of Public Communication, The Scientology Foundation, Saint Hill Manor, East Grinstead, Sussex, England.*

psychiatry

Despite its length, the one-way discourse was superficial. One gathers that Scientology is a form of psychiatry. On entering a Course one is audited with an E-Meter. (One is expected to buy ones' own at a cost of £25-£50.) The subject is placed as the resistance in an electrical circuit and then interviewed by an expert, the type of question becoming more personal and complex at each stage, meanwhile the meter records the resistance generated by the subject as he or she, answers. The hand-out says that "The E-Meter is not intended or effective for the diagnosis, treatment or prevention of disease." A further quote states that "A visit to the department of certification and awards at St. Hill is entirely predictable—a student is expected to know how to do the skills of each level in turn with ease. When a student has completed his requirements on a level, all he does is sign an attestation that he or she does know the data at that level. There are no more written or practical exams at St. Hill."

life on a kibbutz

by Victoria Medvei
a student nurse

Israel is a Western nation amid Arab states. Last year we saw tensions explode. How do Israelis attempt to live in their new environment?



A Kibbutz is a special kind of group. A voluntary collective community which typifies the development of the State of Israel. The movement is not an "escapist" sectarian group, but active in every aspect of Israel and Zionist life. Because of its major role in helping to form the backbone of Israel's agriculture and economy, many people feel that it has made a most decisive contribution to the world, teach-

ing the nations new ways of community living. Members of Pioneer Youth Movements from Israel and abroad, inspired by the Kibbutz ideal, organise themselves into groups and form new Kibbutzes. In this way they are helped by a special army corps called "Nahal" which is composed of young boys and girls, in military service, who are sent to frontier garrisons to take charge and help them to consolidate themselves.

One of the basic tenets of Zionism has been that the land must be national; that to eliminate the evils of speculation and exploitation it must, by necessity, be owned by the people—and never sold. Thus it is leased out by the Jewish Agency and the Government at a nominal fee.

Children on the Kibbutzes, because of the desire by the women to work full-time, live in special houses from their parents. It is felt too, that the psychological tensions and problems are considerably lessened by this. After work, of course, the children are always with their parents. The children graduate from house to house as they advance in age, and their schooling only differs in one respect from the city in that its emphasis is on agriculture. At the age of 18, they enter the army, and become full active members of the Kibbutz.

arrival

On my arrival all my preconceived ideas were dashed to the ground. To my great surprise and pleasure I found Kibbutz Allonim, situated in a beautiful valley surrounded by the magnificent mountain range dominated by Mount Carmel. It was quite breathtaking.

Life for me in the Kibbutz began the following morning with an early call at 4.30. We were taken out on tractors to the orchards where we proceeded to work feverishly collecting pears until 8 o'clock. Of course I started off very well, but I began to flag after a little time, as all this was so new and one was not acclimatised to the work. With aching legs, arms and backs I returned with the other workers to the Kibbutz where we had a most unusual breakfast consisting of salads, raw root vegetables and onions and extremely strong black tea. After this meal, we again went out to the fields

to start collecting more fruit, returning only at 12 o'clock for our midday meal the main course of which consisted of delicious meatballs. This concluded the working day and I was now free to go sight-seeing or swim in the Kibbutz pool. On some Kibbutzes there was an Ulpan, which is a school for the study of Hebrew. This was held in the afternoons, but alternated each week so that one hadn't got to work in the fields early in the morning every week. I would like to mention at this point, that all the young people in the Kibbutz were not necessarily Jewish, although they came from all corners of the earth, neither was it a religious community, but everybody lived exactly the same communal life, sharing everything, and everybody equal no matter what type of jobs he had to undertake.

sabbath

Friday, the Sabbath evening begins at sunset. Work invariably finishes early on this day; white tablecloths were spread on the tables, and

we had a meal of meat instead of the usual omelette. Saturday, the Sabbath is a complete day of rest.

evenings

Our evenings were spent in various ways, a new club had been opened where one could play games and have drinks; some evenings impromptu concerts were given by the children who danced all the local folk-dances accompanied by an accordion. I enjoyed listening to this sometimes sad, and nostalgic music. Occasionally someone would come along to give a talk on Politics, or Life in Europe.

I was only four days living in the Kibbutz but it wasn't long before I began to feel I had lived there all my life, everybody was so friendly, in spite of the "Tower of Babel" atmosphere at the tables. During my stay I was filled with enthusiasm for all the idealistic work and thought which is projected by these young, vital, happy and intelligent people.

book reviews

in Penguins before with Roger Micheldene One Fat Englishman. Garnet Bowen appeared first, Gollancz 1958, and the five years to 1963 merely seem to have witnessed his metamorphosis and reincarnation as Roger Micheldene; admittedly he has changed his nationality from Welsh to English, has become the sort of "gross fat man", who could have a Manningtree ox in his belly and his sexual appetites have increased enormously.

The point is then, that Mr. Amis has done this before, or had another shot five years later, depending how you look at it.

Then, Mr. Amis' talent lies much more in the observation of mannerism and minutiae which fill the average life, holiday, marriage and what have you and he has never, to my mind, been a great one for plots; because I like the way he does this I am prepared to put up with Bowen rambling on through 180 pages on abroad, people abroad, everything about abroad and how horrible it all is abroad.

To go back to Roger Micheldene, Bowen's reincarnation with optional extras, and recall his impressions of what the follow up notices to a book he is presented with would be—the

I Like it Here, by Kingsley Amis. Penguin Books. 42s. 6d.

"Know the enemy
He is a foreigner
Any foreigner
Learn to laugh at him."

Such are the chauvinistic sentiments that are expressed on the cover, in fact the foreigners characterised in the book are the people that I laughed at least. The central character is that of a literary bum, Garnet Bowen, which Mr. Amis has used before, or has at least appeared

Daily Express might well say "This searing, sizzling, I.C.B.M. of a book will pick you up, throw you down and trample on you" and that the *Yorkshire Post* in its inimicable style would add "Remarkable"—but I won't, not this time Mr. Amis.

Jim Drynan

Clausewitz On War, edited by Anatol Rapoport. Pelican Classics. 8s.

Vom Kriege was written by Carl von Clausewitz, whilst Director of the Military Academy, Berlin. This work was much influenced by the campaigns of Napoleon, which Clausewitz lived through fighting on one side and another, whilst its content was to determine the course of European politics and war up to 1914, since then, although that war was to see the loss of the concept of decisiveness and also the first example of what Clausewitz called Total War, his philosophy has received application in modern thought (sic) and international policy today.

The book consists of really two parts a very long and very readable introduction by Professor Rapoport (Professor of Mathematical Biology and Senior Research Mathematician at the Mental Health Research Institute, University of Michigan and a distinguished concert pianist), followed by Clausewitz's concepts. The former is a good introduction to comparative war philosophy and the latter an absolute must for anyone who is wondering how to set up his own private army and the do-it-yourself Blitzkrieg boys. An important difference that Clausewitz did not envisage is that now the protagonist is unlikely to be a State as he saw it but the U.S. against the rest, as the champion of the free world. Neo-Clausewitzian thought in these terms may mean genocide and the destruction of the enemy's offensive capacity has come to mean, to quote the United States Air Force R.O.T.C.—Fundamentals of Aerospace Weapons Systems—

"Any person; thing; idea (sic); entity or location selected for destruction, inactivation or rendering non-usable with weapons which will reduce or destroy the will or the ability of the enemy to resist."

Put in these terms it seems to me so com-

prehensive that it wouldn't take very much effort to get me or you next on the list. Furthermore, it doesn't really surprise me to find that they can discuss whether the "elimination" of Moscow or Leningrad plus Kiev is the more "appropriate" response to the elimination of New York.

Rapoport concludes that—"In the name of realism they perpetuate an obsolete collective state of mind—what is unfolding is not a tragedy but a grotesque farce."

If you can see the truth in this and are interested in a few sidetracks into zero sum and non-zero sum game theory then you should read this book. If you can't and are thinking of emigrating then George Wallace is a good man for you to associate yourself with when you reach the United States.

Jim Drynan.

Logan Turner's **Diseases of the Nose, Throat and Ear**. Seventh Edition. Edited by John P. Stewart. Assisted by J. F. Birrell. Price 70s.

This book, which has a very long history under various authors, has gradually emerged from being slightly too much for medical students to being not quite enough for post-graduate studies. This, however, is the worst that can be said for it as in its new form it is now well arranged, well illustrated and comprehensive enough for all but final E.N.T. fellowship students. An interesting facet and "wind of change" is the inclusion of a number of exotic and tropical conditions which are now being seen amongst an increasingly immigrant population.

The bibliographies are now adequate, up to date, and included at the end of each appropriate chapter, and a very useful appendix is included with some apparently antique but none the less highly effective and simple remedies. The index is extensive and well cross referenced, and apart from a tendency to Americanization of the spelling, e.g. "fatigable", it completes adequately a book which should I feel be read by all postgraduate students and by those medical students who find the subject of particular interest.

L. N. Dowie.

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new specimens

added to the
pathology museum
during 1967

*

of special interest

by W. J. Hanbury
curator of museum

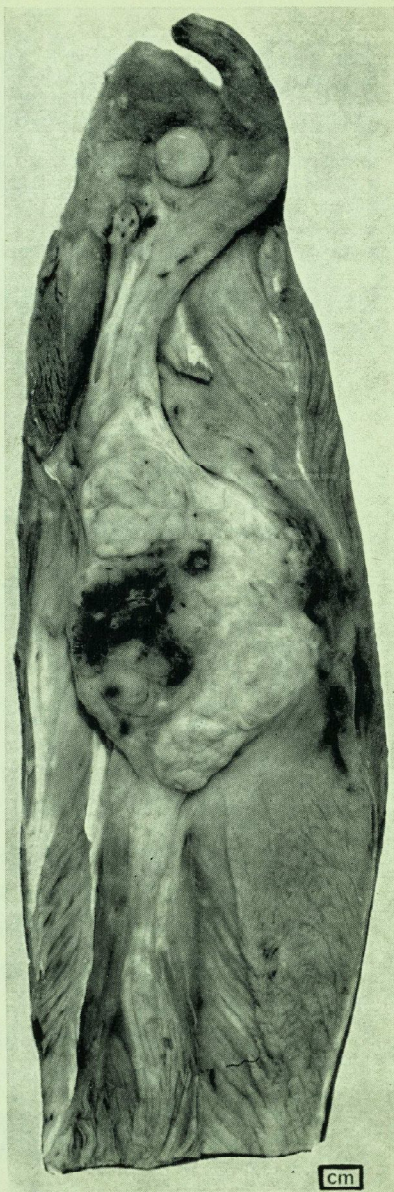
T. 257. Malignant Neurilemmoma

Part of a right lower limb sectioned to show a lobulated, whitish, partly necrotic and haemorrhagic tumour arising from the posterior tibial nerve. Metastatic growth can be seen in an enlarged popliteal lymph node.

Microscopic Examination

Sections show a highly cellular, pleomorphic, malignant tumour with fairly frequent mitoses and areas of necrosis. The features are similar to those which have been described in malignant neurilemmomas.

Removed as an above-knee amputation from a man, aged 52, who had a four year's history of gradually increasing pain as well as a swelling in the right calf. The pain had tended to radiate into the right foot.



Museum No.	Specimen	Clinician
A. 650b	Multiple Myeloma (Skull)	Dr. Balme
A. 650c	Multiple Myeloma (Sternum, spine, rib and femur)	Dr. Fairley
A. 683	Osteoclastoma (Giant Cell Tumour) of Humerus	Mr. Lettin
B. 216	Chondrocalcinosis (Pseudogout)	Dr. Dawson
B. 230	Villonodular Synovitis around Wrist Joint	Mr. Lettin
C. 14	Ankylosing Spondylitis	Mr. Hill
D. 62a	Chronic Rheumatoid Bursitis	Mr. Manning
E. 136	Calcific Aortic Disease	Dr. Hamer
E. 180	Left Ventricular Aneurysm following Myocardial Infarction	Dr. Oswald
H. 37	Pleural Plombage	Presented by The Royal College of Surgeons
H. 117	Emphysema associated with Chronic Bronchitis and Bronchogenic Carcinoma	Mr. Tubbs
H. 137a	Friedländer's Bacillus Pneumonia	Dr. Gibb
II. 139b	Bronchopneumonia	Dr. Hayward
H. 154	Bronchopneumonia and Lung Abscess in Leukaemia	Sir R. Bodley-Scott
H. 240a	Bronchial Adenoma	Dr. Black
H. 265	Secondary Carcinoma (Hepatoma) in Lung	Mr. Hunt
J. 22a	Dentigerous Cyst	Mr. Coffin
J. 24	Apical Granuloma	Mr. Schofield
K. 5	Calculi in Submandibular Gland	Surgical Unit
K. 60	Post-cricoid Carcinoma	Mr. Whittle
L. 202b	Carcinoma of Sigmoid Colon	Surgical Unit
L. 250	Mucocele of Appendix	Mr. D. Williams
N. 54a	Portal Cirrhosis	Mr. Hunt
N. 74	Lupoid Hepatitis	Dr. Dawson
P. 23a	Polycythaemia Rubra	Sir R. Bodley-Scott
P. 27	Hodgkin's Disease—Sternum and Vertebrae	Dr. Hayward
P. 138a	Splenomegaly in Myelofibrosis complicating Polycythaemia	Sir R. Bodley-Scott and Hr. Hunt
P. 185c	Hashimoto's Disease	Mr. Birnstingl
P. 270	Nodular Cortical Hyperplasia of Adrenals	Mr. Howkins
Q. 37f	Polyarteritis Nodosa (Kidney—Microscopic form)	Dr. Dawson
Q. 59a	Kidney of Benign Hypertension	Dr. Hayward
S. 187	Benign Prostatic Hyperplasia	Mr. Badenoch
T. 257	Malignant Neurilemmoma	Mr. Burrows
V. 67	Basal Cell Papilloma	Prof. Scowen
V. 68	Blue Naevi	Mr. Griffiths and Mr. Fraser
V. 108	Carcinoma following Radiodermatitis	Mr. Jayes
V. 109	Fibrosarcoma	Mr. Nash
W. 57	Granulosa Cell Tumour	Mr. Howkins
W. 69	Burkitt's Tumour (African Lymphoma) of Ovary	Presented by C. N. Hudson, F.R.C.S., from Nigeria
Y. 36	Fibro-adenoma in Pregnancy	Mr. Bourne and Mr. Robinson
TE. 133	Congenital Deficiency of Abdominal Muscles with associated Genitourinary Malformations (Triad Syndrome)	Dr. Franklin and Mr. Nash

American Election

by Ken Bode

An extract of a letter from our American Political Correspondent Ken Bode who holds a professorship in the Department of Political Science at the State University of New York. He discusses the American Presidential Election.

As soon as I returned, I went to Chicago and became associated temporarily with a Stop Humphrey organisation . . . just until Senator George McGovern announced. As you doubtless know, the McGovern candidacy was critical to any strategy that would have successfully denied Humphrey the nomination. There were many "loose Kennedys and soft Humpheries", that only McGovern could reach—the former were delegates either formerly pledged to or favouring RFK, who were with McCarthy on issues but unconvinced he could win or bitter toward him from the primary races in Indiana, Nebraska, Oregon, or California—the latter were delegates who refused to support McCarthy because of his refusal to promise support for the national ticket if defeated in convention, but who disagreed with Humphrey's hawkish stand on Vietnam or felt he couldn't win in November. The short of it is that I went directly to work for McGovern—in no way deserting McCarthy (or any other acceptable candidate who could prevent a continuation of the Johnson-HHH Administration, including Ted Kennedy). Actually, I had worked for McGovern in his previous two

Senate races, and knew him pretty well before he declared his candidacy. It also represented a chance to do much more in the movement than I would have been able to in the McCarthy organisation . . . which was in chaos and despair by the time I got back. With McGovern, I worked 20 hour days for three weeks as de facto floor leader. He was a perfect candidate. Had he declared eight months earlier, we might have made it, because he showed none of the proclivity to make (and stick by) political errors, nor did he compromise any principle, especially Vietnam. He showed the kind of empathy with blacks that McCarthy lack, and Robert Kennedy had developed so meaningfully. Furthermore, he flatly refused the Vice-Presidency—which was probably the final test of his courage and convictions, given the nature of America today.

the convention

As for the convention itself, it was the horror that your newspapers doubtless described . . . and worse. The television correspondents on the convention floor could hardly cover what was happening within each delegation and the number of times that anti-war people were denied the right to speak, and the techniques employed are nearly beyond description—furthermore, journalists from the printed media had no access to the floor itself, and were highly dependent upon what they saw from their perches above the speakers' platform. Not only was there a general perversion of what one might expect to occur in a democratically conducted body, at the behest of those who organised and controlled the convention, but the security people brought in by to the floor proceedings. We discovered that Mayor Daley lent an air of complete thuggery the floor security was in the hands of a group of retarded Cro-magnons whose normal function was to run the various private detective agencies in the Chicago areas—in other words, these admirable characters are the ones who break into motel rooms and take pictures of illicit beddings in the area. You can imagine what it was like dealing with these people on the floor. I was taken into custody by them one night, and nearly got a look at the inside of one of Daley's jail. I came as near to one of Franco's political prisons once, and I think I feared Chicago more.

From sewer to surgery

A sample of sewage outfall formed the starting point for the antibiotic cephaloridine. In 1945 an Italian scientist Professor Brotzu first discovered antibiotic activity in a culture of the cephalosporium mould. Investigations showed the mould could produce a number of antibiotics but the most promising, cephalosporin-C, was only produced in small quantities. Glaxo's antibiotic production resources were enlisted and over three years their research staff improved the yield. Glaxo chemists then prepared 600 modifications of the cephalosporin-C nucleus and the antibiotic designated '87/4' was shown to be the best. It became known as cephaloridine (Ceporin). Clinical trials and use have proved it to be exceptionally broad-spectrum, bactericidal and well tolerated even by penicillin-hypersensitive patients.



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If accepted as a Medical Cadet, you are given the probationary rank of 2nd Lieutenant. On qualification, you are promoted Lieutenant, and are paid as such while you fulfil your pre-registration appointment – either at a civilian hospital of your own choice, or at certain military hospitals. After being fully registered, you are promoted Captain,

M.3.

and take up your duties in the RAMC.

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For further information about Medical Cadetships, or to arrange a meeting with an RAMC Officer to answer any questions you may have, write to: Colonel E. L. O. Hood MB, Ministry of Defence (AMD2), Dept. 454, Lansdowne House, Berkeley Sq., London W1X 6AA



Saint Bartholomew's Hospital

JOURNAL

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journal staff

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abortion

feature

introduction by
Clive Froggatt

The problems concomitant with abortion are many, and vary for each individual case. No two cases are the same: no rules can be made and then rigidly adhered to.

The doctor and the patient have problems in common though some are more relevant to the doctor and others to the patient.

The four articles in this issue deal with the legal, ethical, religious and psychological problems arising from abortion, since it is within these terms of reference that most of the problems encountered are more commonly met.

The authors of these articles will have their own views on the particular problems with which we are concerned and these views will probably be reflected in their articles. It would be well, however, for readers of "The Journal" to consider the points made and to establish some ideas of their own on this subject, or, perhaps, to reconsider the ideas they have already formulated, before they are confronted with the situations which are now discussed.

Most people are very likely now, or in the future, to have a direct involvement in the problems of abortion and it is important that they should be prepared to meet them. They should also understand how these problems are dealt with in the new Abortion Act. This Act has made abortion legal virtually wherever a doctor acts in good faith within the terms laid down.

The religious, ethical and legal problems should be fully discussed with the patient, and others directly concerned, so that the best chance of the right decision being made is taken. It should be remembered, though, that despite the difficulties surrounding the decision, whether or not to terminate a pregnancy, it is the patient, herself, who, in the final analysis, will have to live with the results of that decision.

The new Act has clearly been utilised. In the law's first nine weeks of operation, 4,412 women had an abortion: 2,752, two-thirds of them, in N.H.S. hospitals. About 70 per cent. were performed on the grounds of risk of injury to the physical or mental health of the woman.

It is difficult to compare these figures with any others, since previously many abortions were performed outside the terms of the existing laws, and accurate statistics are therefore not available.

Now, however, that abortion has been brought within the terms of new legislation, it is to be hoped that the subject will be discussed more openly and that results from the terminations of pregnancy under the new Act will bear out its usefulness.

abortion and the doctor

by Dr. Malcolm Potts M. D.

Dr. Malcolm Potts discusses the medical facts of abortion, and the significance of the 1967 Abortion Act.

The medical profession is, quite rightly, conservative. It is universally agreed that no therapeutic procedure should be undertaken unless the risks of treatment are less than those of the natural course of the disease (a principle which some heart transplanters might do well to remember). No surgical procedure should maim, mutilate or destroy without reasonable cause. All medical procedures should aim at being creative and improving the health of patients to as great a degree as possible. The question many doctors are asking concerning the 1967 Abortion Act, is, "How far am I justified in using the new freedom granted by the Act?" The variation in the way in which the Act has been implemented in different parts of the country shows that doctors are divided on this point.

The new Act came into force on 27th April this year and it is certainly more liberal than the clauses of the 1861 Offences Against the Person Act which it supplements. Although it widens the grounds on which a doctor may legally terminate a pregnancy, it is important to remember that it includes some new safeguards. The decision to terminate must be certified by two practitioners. The operation can only be performed in registered hospitals and nursing homes, and when an operation has been carried out it must be notified to the Ministry of Health. Laws are usually signposts to changing attitudes, and it is significant that the number of therapeutic abortions performed in National

Health hospitals increased from 3,300 in 1964 to 6,300 in 1966 even before the Act was passed. There is evidence that this increase is continuing and 2,348 terminations were done in the first two months following the Act coming into force. (This number includes operations done in private nursing homes which were not previously counted.)

Under the new Act a pregnancy can be terminated when:

- (a) "the continuance of the pregnancy would involve risk to the life of the pregnant woman or if injury to the physical or mental health of the pregnant woman or any existing children of her family were greater than if the pregnancy were terminated; or
- (b) there is a substantial risk that if the child were born it would suffer from such physical or mental abnormalities as to be seriously handicapped."

Termination when there is a substantial risk of congenital defects is the least disputed clause of the new Act. The first thing that most women and doctors want to know at delivery is that a normal baby has been born. Many gross abnormalities are incurable and in those cases where the risk of abnormality can be predicted, a large number of women would rather have a termination and be able to begin a new pregnancy.

COMMON

In recent years it has been realised that abnormalities of embryonic development are exceptionally common. In the Hertig and Rock collection of early women embryos it is estimated that 10 per cent of the eggs fertilized did not reach the blastocyst stage, and 42 per cent. failed to survive the implantation and a further 16 per cent. died before the twelfth day of development. Most of the early embryos that are lost are abnormal and spontaneous abortions later in pregnancy also include a very high incidence of abnormal embryos. For example, among 227 spontaneous abortions Carr found 56 chromosome anomalies, a rate which is fifty times that found at term. The doctor's role in terminating a pregnancy for possible congenital defect can be seen as supplementing a normal, healthy and, indeed, invaluable biological process. When terminating a pregnancy on grounds of possible abnormality the doctor has to face the likelihood of destroying a normal embryo, but whatever the

processes involved in spontaneous abortion, they are also wasteful of potentially normal embryos early in pregnancy.

mortality

When pregnancy is terminated on the grounds of danger to the physical or mental health of the mother, the risks of the operation must be balanced against the risks of continuing the pregnancy. The mortality rate for legal abortions varies according to the stage of pregnancy when it is performed, and in those countries where there are liberal abortion laws and the operation is done in the first trimester of pregnancy the death rate is less than carrying the pregnancy to term. For example, between 1958 and 1964 in Czechoslovakia there were 12 deaths amongst 561,000 terminations, a death rate of 0.02 per thousand. If pregnancy is terminated in a woman who is already critically ill as might occur in the case of renal or cardiac disease, then the risks of termination will rise but so will the chances of death due to continuing pregnancy. Fortunately, as obstetricians improve the number of cases when pregnancy must be terminated on grounds of risk to the physical health of the mother decline and even the review of the subject provided by the BMA Committee on Therapeutic Abortion in 1967 is out of date.

The majority of abortions, however, are not performed because of the risk of abnormality or of danger to the mother's health, but take place on broader, social indications. In this situation the doctor's judgment is more severely taxed. He must weigh his desire to protect the embryo against the social and psychological consequence of continuing the pregnancy. In doing this it is vitally important to realise that the number of induced abortions which take place in any country are in no way whatever related to the ideals set out in the law. In fact, there appears to be an inverse relationship between the strictness of the law and the number of abortions that take place. For example, in Poland, which is a devout Roman Catholic country despite its Communist Government, there are 34 abortions for every 100 live births and most observers would agree that this is much in excess of the rate for legal and criminal abortions in the U.K. Again, in Northern Italy there is evidence that there may be one or more induced abortions for every single live birth. In Latin America induced abortion is illegal but criminal operations are

so frequent and so badly done that they constitute the commonest cause of death amongst women of the fertile years.

It is to be hoped that the new English law will help to transfer criminal abortions to hospitals. The degree to which this can be done is often debated, but the evidence from Eastern Europe suggests that a liberal law will fulfil this aim. In Hungary in 1952 there were 185,000 live births and under 2,000 legal abortions. In 1956 the law was altered and abortion became available upon request, and by 1964 there were 184,000 legal abortions. If the law had encouraged a *de novo* rise in the total number of abortions taking place there would, by simple arithmetic, have been only 600 new babies born in Hungary in 1964. In fact, there were 132,000 live births showing that the great majority of legal abortions must have previously occurred illegally. Even the drop in the birth rate which has taken place between 1952 and 1964 is mainly accountable by long term demographic changes which began many years before any alteration in the abortion laws. At the same time it would be naive to suggest that the Hungarian law is a satisfactory one or that it does not lead to some unnecessary operations.

no freedom

The Hungarian situation is the mirror image of that found in nearly all other countries because the doctor is not given the right to refuse the woman's request for a termination. The new English law which gives freedom of decision to the doctor, and allows a broad spectrum of medical and social circumstances to be considered, is much preferable. However, it is interesting that even the unusual situation which obtains in Hungary has not been abused. Although the number of women of high parity has declined in recent years, the number of families with one or two children has increased and there is no evidence of any adverse effects on the family unit. While the law has been enforced the use of contraceptives has been increased. Doctors should learn that the best protection for an embryo is the fact that it develops inside a woman and that when a woman seeks a termination she has already had to overcome her natural and powerful instincts to preserve the pregnancy. The tiny minority of women that adopt a casual and irresponsible attitude to induced abortion are nearly always sufficiently abnormal as to make very poor mothers.

The follow up of women refused legal abortion shows that (providing the woman has not turned to a criminal abortionist) the child that is born is at a number of social disadvantages. Swedish studies show that such children leave school earlier, are more likely to be convicted of juvenile delinquency, are more likely to live in broken homes, are less likely to be fit for National Service and themselves make younger, and presumably more unsuitable marriages, than a control group of children matched for social background and parental age.

The least controversial but unhappily the most neglected duty of the doctor who has to deal with a woman seeking a termination is to make sure that after the present pregnancy she receives effective and practical contraceptive advice. One of the most encouraging results of the 1967 Abortion Act has been its effect on Family Planning Services. The Family Planning Bill introduced by Mr. Edward Brooks into the same session of parliament went through without any opposition, and the Royal College of Obstetricians and Gynaecologists have taken an increasing interest in the problems of family planning as the debate on abortion has developed. It is imperative that every effort should be made to reduce the need for termination by

improving family planning services.

In summary, it is in the interests of the mother and of society if doctors adopt a realistic and fairly liberal attitude to termination during the first three months of pregnancy. During this period the embryo is biologically far removed from the viable foetus or new born child; there is a high degree of pregnancy wastage, the possibility of experimental chimeras and the natural occurrence of hydatidiform moles and teratomas all emphasize the difficulty of biological definitions and the remoteness of the earlier embryo and, in addition, the nervous system is poorly developed and of rudimentary function. As pregnancy comes to the second trimester the embryo acquires an increasingly significant status, the dangers of termination rise steeply and it is ethically right and medically necessary to adopt a more strict attitude to normal abortion. The example of Sweden is instructive because in that country a cautious law has been interpreted in a conservative way with disastrous results and as many pregnancies are terminated in hospital at 20 weeks as at 11 weeks. It would seem necessary to adopt a liberal attitude early in pregnancy, even at the risk of carrying out one or two unnecessary operations, in order to avoid the dangers and unpleasantness of a late operation.

abortion and the church

by the Dean
of St. Pauls

Why abortion? Among many others, five main reasons open up a line of positive enquiry. Married women may plead that their lives could be risked or their health impaired if pregnancy runs its full course. Others, on such evidence as is available, fear the risk of the birth of a deformed child. Some, resort to abortion to rid themselves of a baby who may prove to be socially inconvenient. Expectant unmarried women may be added to this group. The other potential applicants are girls or women against whom a sexual offence has been committed, victims of rape or incest, or youngsters below the age of consent.

Confronted with these cases, many people want a clear black and white decision and consequently fall into the temptation of solving the problem by over-simplified answers. It could be said, on the one hand, that abortion, the killing of a child in the womb is murder, and therefore is forbidden. This is the view of the Roman Catholic Church, but other Christian Churches (including the Church of England, the one Church about which I am able to write with any degree of confidence), have been driven to recognise that so simple a

The Anglican view on abortion. Neither for, nor against, the weight of decision is put firmly on the medical profession.

formula does not match the complexities of this great issue. On the other hand, some will say, that this is a practical matter, to be dealt with on medical and sociological grounds and that undue concern with moral implications leads to confusion. This blinkered view is a flight from reality.

normative

There appears to be only one way forward which commends itself to the main body of the Christian tradition. I believe that it is imperative to regard the inviolability of the foetus as normative but not absolute. To adopt the latter view is to conclude the discussion, but to ignore the former means there is no basis at all on which to build a case. If, therefore, we begin by asserting, as a first principle, the right to live and develop, then any departure from this requires proof that there is, in particular cases, another and higher claim which must be recognised. If we hold that human life is sacred, what shall we do when we are presented with a situation in which two lives are involved and the preservation of one may put the other in jeopardy? It may be well now, in the light of the principle we have just enunciated, to examine the claims for abortion made under three of the five headings, set out at the beginning of this article.

1. Threat to the Mother's life or health

The first essential is that only registered medical practitioners (not, under any circumstances unqualified abortionists) are to be the agents in this matter and further, the law shall not be mandatory, but only permissive. In addition, it might well be required that the opinion of one or more specialists after full personal examination of the patient, should be forthcoming by way of concurrence. The interests of the mother's health must be the first consideration, and a decision to terminate a pregnancy must begin at that point. Some discussion has already centred around the final date when such a termination can be made. It seems reasonable that the time factor must ultimately rest with the medical profession. If it is to be trusted with the great matter of termination, it must also be permitted to make

further decisions, based on all the data available to it.

2. The risk of the birth of a deformed or defective child

This matter is hedged in by a host of difficulties; the problem is by no means as easy as it appears. What the mother (and her husband) desperately need is advice, and this can be given only by those qualified to offer it. In the end they both are called upon to make a decision. What then is to be the nature of that advice? Two factors emerge; the possibility (even near certainty) of defect and deformity in the child, and the nature and extent of that defect, and the probable effect upon the mother and upon her health.

But what of the mother whose health will not suffer as the result of the birth of a deformed child, but who thinks (a) the rearing of him will deprive her of the energy and perhaps affection she ought to give to the rest of her family and (b) it is better for such a child not to be born at all? Under these circumstances should the foetus be sacrificed? Here we return to the main thesis, viz: the inviolability of the foetus, as normative. The complications arising from ectopic or anencephalic foetus, or the mother with rubella, have to be worked out in relation to all the other available evidence. Is a deformed child a complete "write-off"? If the answer is that everything depends on the degree of deformity, what degree justifies abortion? If the mother's health is likely to be impaired, how grave is the impairment? Is her life really in danger? Will the rest of the family be wrecked by the advent of a defective baby? Might it conceivably be enriched?

The advice to be given must come first from the professional medical body, supported in turn by other social agencies, and finally backed by the law. We are all fallen men and we cannot assume either infallibility or freedom from even deliberately wrong thinking or acting, but within these limits, it can be reasonably hoped that permission lawfully given will not be abused.

3. Conception as the result of rape, incest and other criminal offences

In this section we shall be considering not the health, well-being or the risk to the life of the potential mother, but rather whether the pregnancy should be terminated on the grounds

of the offence *per se*. Popular opinion would probably say that the offence is sufficient argument for termination. Is this so? Once again we are faced with many complexities.

parasite

The case itself however can be stated quite simply. The difficulties arise in attempting an answer. The mother has been violated and she thus projects on to the foetus which has no independent life all the bitterness and resentment she naturally feels, and regards it, now, as the violator of her person. Must she be compelled to bring the child finally to birth, to face these conditions, to be hated, unwanted, a parasite?

Simply to accept the destruction of the foetus as inevitable under these circumstances is, however, too superficial. An effort must be made to help the mother to turn her resentment into acceptance and forgiveness, not only to those who wronged her, but also to the unborn child. To demand its death, because of an unlawful conception is to open the door to a wide range of abuse. What of a child born out of wedlock as of a wife who is subjected to the kind of violation, indistinguishable from rape, within the marriage bond itself?

difficult

Further, on what grounds is the allegation of rape to be determined finally as a fact? Is the physician to rely purely on the woman's evidence, or must he wait until the culprit is apprehended, tried and found guilty. What if he is not apprehended at all? No doubt an obvious exception arises, when a child is brought for immediate medical attention by the police. The point I am making is that we must recognise that easy solutions are not necessarily the correct ones. Precisely the same difficulties occur in the case of an incestuous relationship. Once again, it is difficult to establish a specific justification for abortion, on one plea alone.

In the light of all the circumstances which have now been reviewed certain conclusions appear. I have made the point that the law in this regard must be permissive and not mandatory, and that we should remain faithful

to the tradition which regards the inviolability of the foetus as *normative*. It seems unnecessary to argue semantically about terms such as "soul", "innocent", "guilty" and find ourselves making no real progress. The foetus is potentially a human life and from the Christian viewpoint, it has therefore a moral significance. For this reason, the early Christian church sets its face resolutely against abortion and some branches (as we have seen) continue to do so to this day. Nevertheless, there are many other branches which would support the broad contention, that under certain circumstances, abortion can be justified. We have tried to state these circumstances in this article, but a brief summary of them at the end, might be helpful. The burden of the argument is that a threat to the mother's life, well-being, or health, coupled with a real danger to the well-being of her family must first be established. The medical practitioner in close consultation with the kind of consultative groups we have suggested would be responsible for tendering advice. The final decision must rest with the mother, who in turn has her husband and her family by her side. The consultation procedure would also cover cases of criminal assault, incest and the like. One must also note the occasions when abortion is not indicated or advised. The patient needs again, all the skilled medical and social help which may possibly be given to her. The freer her access to these sources and the more open her opportunities for full consultation, the less likely is she to resort to some "back street" abortionist. The approach to this whole problem must always be creative and positive, and the hope is that less rather than more abortions may be performed and that the unskilled amateur (including unhappily the patient herself sometimes) may be dissuaded altogether from entering into an activity which is often fatal in its consequences.

compilation

In the compilation of this article I have leaned very heavily on a pamphlet prepared by the Board for Social Responsibility of the Church of England. Indeed much of what I have written is a precis of the findings of a special committee set up to investigate this matter. Whilst the report carries with it no authority beyond that of the group which created it, many churchmen (of whom I am one), would support its general findings.

abortion and the law

by Sir Roger Ormrod
Q. C., B. M., B. Ch.

One day an abortive drug will be found, as efficacious as oral contraceptives. That day will end the argument on abortion.

Attitudes to the abortion issue are the resultant of moral principles, religious beliefs and complex emotional pressures, both conscious and sub-conscious. It is, therefore, not surprising that discussion of this issue tends to be both confused and vehement. At the root of it is the fact that in our present state of knowledge termination of pregnancy generally, but not always, directly involves two parties, the pregnant woman and the surgeon (who more often than not is a man). Others are, of course, concerned but less immediately, the father, the foetus and the nurses but the decision rests with the surgeon who has to perform the aborting act.

Child-bearing is an exclusively female function. It is the only activity in life, apart from the male role in sexual intercourse, which is absolutely monosexual. It is also the only major aspect of life over which women have ultimate control and men are powerless. No man can prevent a woman who is sufficiently determined from aborting his child. These two facts are profoundly important influences on attitudes to abortion. It is easy to see how, in men, deep-seated sex-jealousy can arise from

the former and profound anxiety from the latter. The laws forbidding abortion, and the religious and moral principles from which these laws derive, have been formulated over the ages by legislators, theologians and philosophers all of whom, until recently, have been men. It is not very difficult to discern a possible motivation. One of the best ways of clarifying the mind on this subject is to speculate on what the law and the moral principles might have been had the legislators and the philosophers also been the child-bearers. Might not more emphasis have been laid on the right of the child-bearer to control his own destiny and bodily functions and less on the rights of the foetus or fertilised ovum?

Other strong emotions are also involved for those who are called upon to terminate pregnancy. The taking of human life in any form is bound to cause repugnance which increases in intensity as the foetus develops more and more obviously human characteristics. A D. and C. is one thing; hysterotomy another. Again there is something truly anomalous about a couple of apparently healthy girls, admitted for termination, lying in a gynaecological ward filled with patients under treatment for pathological conditions. Doctors and nurses feel uncertain of their attitudes in these cases. They are accustomed to their roles in the treatment of the sick but such girls do not fit at all easily into that pattern. Hitherto, the law has laid so strong an emphasis on the danger to the health of the mother as a justification for termination that it has been possible to paper over this sense of incongruity and to maintain, more or less successfully, a therapeutic atmosphere. The Abortion Act 1967 has, however, extended the grounds on which abortion may lawfully be performed to include the risk to the health of the existing children of the family. This is undoubtedly overstretching the paper and in spite of the efforts of the B.M.A., and others it will become increasingly difficult to preserve the therapeutic situation even in theory. It will take time to evolve new attitudes to this problem and to the abortion issue generally.

For those who believe on moral or religious grounds that it is wrong to destroy the fertilised ovum on any ground, the issue is clear. So long as abortion was lawful only when it was a case of saving the life of the mother i.e., choosing between the mother and the foetus, the issue was almost equally clear. But when it became permissible in law to terminate a pregnancy to avoid the risk of serious injury to the mental

or physical health of the mother a new and much vaguer dimension was introduced, which made it increasingly difficult to distinguish, on any sound logical basis, between the woman to terminate and the woman who should be required to go to term. The assessment of the degree of risk in such cases is almost entirely subjective and will vary from doctor to doctor. Moreover it is difficult to distinguish the bona-fide from the dishonest, opinion in border-line cases. The therapeutic test, in fact, has become so attenuated that in many cases it is no longer the real decisive factor. Other considerations, mostly social in character, are taking its place. With the extension under the new Act to permit the risk to the health of other children to be taken into account, the therapeutic test has gone in all but name.

From these reflections there emerges the important question. Is there, in truth, any stopping place between permitting abortion only to save the life of the mother and permitting abortion at the request of the mother? Parliament may lay down the law as it pleases and may prescribe any number of intervening stops but the real question is whether any of them can ever be made effective. During the discussions both in and out of Parliament on the Abortion Law Reform Bill great efforts were made to evolve formulas to define the circumstances in which abortion should be lawful and intense controversy ensued. The present Act embodies the ultimate compromise. The crucial problem of enforcement of the provisions of the Act, however, remains to be solved. It seems very unlikely that the police will ever be able to distinguish between the lawful and the unlawful abortion provided that two doctors are prepared to recommend it and it is done in an N.H.S. hospital or in a nursing home registered under the Act.

This, perhaps, indicates the only practical stopping point. So long as termination involves an operation it will be necessary to have an operator and a place for the operation. The decision to terminate will, therefore, always have to be a mutual one. Just as it is inconceivable that a woman could be lawfully aborted against her will, so it is inconceivable that any doctor or nurse could be required to take part in an abortion against his or her will save perhaps in a life saving emergency. This means that doctors must evolve their own attitudes to abortion and take their decisions for themselves. Some will feel that the therapeutic test, honestly applied, will resolve their mental and emotional conflict. Others may feel

that social and other non-medical considerations are of primary importance and will adopt a more elastic interpretation of the law. Others will find the whole subject repugnant and avoid it as much as possible. Doctor and patient must each take their decisions separately, neither having any right to attempt to coerce the other, but so long as most terminations are done by operation both are bound to suffer more or less painful conflict of mind.

Sooner rather than later the chemists will come to the rescue by producing a drug which will cause the fertilised ovum to be discharged as safely as a normal period. At that point abortion will become a unilateral decision by the pregnant woman. The doctor will no longer be called upon to take direct action to terminate the life of the foetus although if he prescribes the pill he will be a party to it and his decision and his attitude towards it should logically be the same as if he were called upon to operate. In practice, however, for most people it will be different and will approximate much more nearly to their attitudes to oral contraceptives. However clear-cut philosophically the difference may be between the fertilised and the unfertilised ovum, it will become blurred in practice.

power

The broader reactions to such a pill are more difficult to foresee. Vigorous attempts to suppress it or to subject it to rigorous control are likely, for its implications will soon be understood. It will give to women, in a form which can easily be exercised, the power to control their bodily functions at their own will without resort to drastic and uncertain measures which at present deter all but a small minority. Whether any attempts to control the distribution of such a drug can ever succeed must be extremely doubtful. Each person wanting to use it will require it only occasionally and in very small quantities. Its use will be quite undetectable. It will, presumably, have to be available under controlled conditions because there would be a genuine therapeutic demand for it. One theft of a small quantity of it would supply the black-market for a considerable area. It is, therefore, difficult to avoid the conclusion that with the introduction of such a drug, abortion at the discretion of the pregnant woman will have arrived and attitudes to the abortion issue will have become academic.

abortion and psychiatry

by Dr. C. M. B. Pare

Psychiatric considerations in abortion. It appears that withholding an abortion from a woman who wants one carries a substantial risk.



Why women get an unwanted pregnancy

One of the big problems which this subject raises is why women get an unwanted pregnancy as only by knowing this can we lessen the number of patients asking for a termination. Very roughly the patients fall into four main categories, though with a lot of overlap:

(1) *The innocent girl*

This group is by far the smallest and is mostly confined to the very young or immature girl and the very occasional case of rape or inadvertent alcohol intoxication. The solution

here is chiefly one of parental guidance and supervision together with the normal sexual instruction done gradually from a very early age.

(2) *Mistakes in an experienced woman*

This is quite a large group and includes a large proportion of the married women who have an unwanted pregnancy as well as a smaller proportion of unmarried girls. The fault here is lack of adequate contraceptive instruction. The great majority of this group have relied on modifications of the safe period or a contraceptive sheath, though occasionally pregnancies have occurred when the patient has just started a contraceptive pill or in spite of an intrauterine device or apparently well-fitted cap. To my mind it is this group of patients which would be greatly decreased if only they had had better instruction in the necessity for and the best methods of contraception.

(3) *The incorrigible group*

These are the inadequate neurotics and psychopaths who seem intent on making a mess of their lives and who, if married, raise a "problem" family. From a psychiatric viewpoint, they act out their personality problems and, as a result, seem incapable of following contraceptive advice consistently. Such patients, if terminated, are likely to get pregnant soon afterwards, a phenomenon which has been put down to the patient's unconscious wish for a child. Occasionally this seems to be a factor, but deep-seated resentments and a childlike inability to sacrifice present desires for the sake of the future are more common.

Psychiatrically these patients are difficult to treat and often make bad parents. When spotted (by the G.P. or Family Planning Clinic) they are best treated with an intrauterine device which has the additional advantage that they are made to think carefully before deliberately entering into pregnancy and the question further discussed at the Clinic if they ask for its removal.

(4) *The depressed girl*

This constitutes a significant proportion of unmarried girls who get pregnant. Time and again I see girls who for some apparently unaccountable reason behave in a manner quite uncharacteristic for them. It may be a young

virgin who suddenly has intercourse with a casual acquaintance after a party, or an older girl who had slept with special boy friends in the past, always with adequate contraceptive cover, but who starts sleeping with casual or frankly undesirable men without any precaution taken against pregnancy. Usually in such cases one can find incontrovertible evidence of an associated depression frequently shown in other aspects of their behaviour. In such states of depression the girl is frequently lonely and accepts intercourse for the affection and comfort this provides; often there is little or no physical gratification. At the same time there is a lessened resistance to the man's advances and a "couldn't care less" attitude to what happens to them so that contraceptive precautions are not taken.

Sudden changes in a girl's behaviour patterns are, of course, difficult to cater for. Obviously a secure and close relationship with her parents is the best support in these situations but so often this is not there for emotional or geographical reasons. However, it does help if the girl has made up her mind definitely what is correct behaviour with a particular type of boy friend. Girls who know exactly how far to go with an ordinary boy friend, what to reserve for the very special one, and what to reserve for marriage, are less likely to be influenced by a depressive swing than a patient who has to decide on the spur of the moment.

Psychiatric Grounds for Termination of Pregnancy

Reactive

Typically the patient is fairly well until she becomes unexpectedly pregnant. Psychiatric symptoms are exactly related in time, degree and content to the stress the pregnancy causes and will be relieved as soon as the stress (pregnancy) is terminated, though the operation itself may well carry different stresses.

An unexpected pregnancy can cause a tremendous disruption in a woman's life. She may have decided she has as large a family as is financially desirable and have started a job to provide a special education for one or more of her children. A new baby will disrupt all her carefully made plans and, she may feel, ruin the prospects she had envisaged for the children she already has. In practice most women can cope with such a situation and though psychiatric symptoms may appear under the initial

stress, these are unlikely to be lasting or cause serious mental ill health. Only if the pregnancy is particularly stressful and results in problems which cannot be resolved except by termination and, in addition, the patient's personality is such that she is incapable of adjusting satisfactorily to such a lasting stress, is continuation of pregnancy likely to cause permanent mental ill health sufficient to justify termination.

The two main groups of patients are the unmarried girl and the elderly multipara. The stress in the single girl is more acute: how she can cope with the social stigma, where to live, jobs, and the dilemma of keeping the baby or having it adopted. With a fully supporting family, most girls can cope but by herself the prospect is formidable. Having carried the pregnancy to term and cared for the infant, suddenly to give it away to strangers is extremely distressing to any girl with normal instincts. Yet to keep it, pay for its care while she works, and look after it at night, will almost certainly entail the sacrifice of her friends and the social activities which are so important at this stage of a girl's life. Severe and lasting psychiatric symptoms often come on at this stage and even in their absence the remark that "I wouldn't part with her for anything, but she's ruined my life" is so often only too true.

Miss P., 23 years, came of a professional family in America and emigrated to England where she qualified as a psychiatric nurse. Possibly during a mild period of depression and loneliness shortly after arrival, she had sexual intercourse for the first time and became pregnant. She continued the pregnancy and cared for the child for eighteen months when she could no longer cope and had it fostered, at first with an unsatisfactory family and for the last two years with a family 50 miles away. She has been depressed off and on, feeling guilty for the lack of care she can offer her baby and is particularly upset after visiting her which she does every week. Since this episode she had no further boy friends until four years later she met a married man who was "kind" and she appreciated his affection and the comfort this offered her. She allowed intercourse and when she realised she was pregnant became increasingly depressed, ashamed and guilty for the baby which would be born, yet unable to seek help and advice. She was admitted after a serious suicidal attempt when 6½ months pregnant. As the baby was viable, termination could not be considered and as she was still in a suicidal frame of mind, she was admitted to a psychiatric hospital.

The case of the elderly multipara is usually easier to assess. Here the patient may have been stable and free from psychiatric symptoms until the birth of, say, her fourth child. After the fifth symptoms were quite pronounced, necessitating tranquillisers or antidepressants from her G.P. and she is referred to me pregnant for the sixth time. The problem is simply whether she can cope with bringing up an additional child without developing a complete breakdown or alternatively exacerbating her symptoms to the extent that she becomes a permanent mental wreck.

Such cases should be assessed like any other psychiatric patient, the adequacy of her personality, how she has faced up to other stressful situations and the extent and duration of any psychiatric symptoms which resulted, to what extent will the pregnancy be stressful to her and what support she is likely to have from the father of the child, her parents, etc., should all be taken into account.

Mrs. W., 37 years, was an apparently stable and good wife and mother who became rather tense and irritable after the birth of her fourth child. After the fifth child she deteriorated markedly, becoming much more irritable with the children, not caring about her appearance, and complaining of being too tired to go out at week-ends or evenings. Intercourse had become very infrequent because of her fear of becoming pregnant. She did in fact get pregnant again and I thought she was suffering from a reactive depression and recommended termination and sterilisation. Six months later she had returned to normal health. She was no longer depressed, had regained her interests and her pride in her personal appearance. She was particularly pleased at being sterilised, was no longer afraid of becoming pregnant, and her sexual life had returned to normal.

Social

In assessing whether continuation of pregnancy would be bad for the patient's health, Parliament allows, and in fact we always do take into account, social circumstances. However, this does not mean that we recommend termination for social reasons as distinct from medical indications. If a patient with a precariously compensated mitral stenosis was pregnant, in deciding whether she should continue the pregnancy, account would be taken of the social circumstances. A wealthy woman with servants would obviously be able to cope better than a patient with no help, a sick

relative on her hands, and several flights of stairs to climb. Similarly, a patient on the brink of a depressive breakdown will be less able to cope with an additional child if, in addition, her husband is an out-of-work gambler and she already has to manage two or three pre-school children in a flat with no playground facilities. In both cases social factors are taken into consideration but only in so far as they have a direct bearing on the medical effects of continuing the pregnancy.

Endogenous

Contrary to general medical opinion, the possibility of an endogenous puerperal depression is not usually a sufficient reason in itself for termination. Even if depression occurred after a previous pregnancy the chances of a recurrence in the next is only 15-20% and the prognosis is generally quite good. Furthermore, a similar puerperal depressive illness may be precipitated by the termination itself. However, a patient with a schizophrenic illness is a different matter because of the extremely serious nature of the condition. Termination should be advised if schizophrenic symptoms arise for the first time at the onset of pregnancy, if serious (process) symptoms show signs of worsening, or if an earlier pregnancy or confinement aggravated the illness.

The normal but immature girl

A first pregnancy is always a very important experience in a girl's life, accompanied by a host of normal anxieties, and is a time when she most needs the support of a husband. Going through this for nine months, to be followed perhaps three months later by giving up her baby to total strangers, when normally this separation is done gradually over a period of 18-20 years is, by any standards, a most distressing experience. At the same time, even nowadays, the girl is made to feel a social outcast and is in a position which is the antithesis of what she has been brought up to believe to be correct for herself and what her parents expected of her. This leads to resentments against life, herself, and perhaps her parents, in addition to the obvious disruptions in her life and friends. When this happens over a prolonged period of time in a girl whose personality, although previously normal, is still in the process of development, it raises the question whether it leads to the formation of

abnormal personality traits. In some patients it undoubtedly does, especially in the sphere of interpersonal relationships; other girls seem to cope with the stress without any harmful effects.

My practice is to recommend termination as a general rule in girls under 16 years of age and in 17 or even 18-year-olds who are markedly immature for their age. We are particularly interested in girls who are less immature, the 18-20-year-olds. How vulnerable are they to an unwanted pregnancy, and how frequent and how serious are the personality abnormalities which might result.

FOLLOW-UP RESULTS

Between 1962 and 1965, I personally saw 118 patients for consideration of termination of pregnancy and during this period I have done my best to follow them up. The majority of the patients I saw myself on follow-up but in some of the patients, where I had refused termination, I had to get information through relatives and G.P.'s. Only four patients was I unable to follow up at all.

Of the 114 patients I followed up, 53, just under half, were terminated at my recommendation. In 61, that is just over half, termination was not advised. In both groups there was nearly twice as many married as single women.

Terminated

The most striking thing was that none of these 53 patients had any serious ill-effects from the operation. As other people have mentioned in the past, the more maternal traits a woman had in her personality, the more likely was the patient to have feelings of guilt about the termination. Conversely, the more immature, hysterical or psychopathic, the more a termination left the patient unaffected. In fact, mild guilt feelings were relatively common, though usually they only lasted a matter of two to three weeks and very few lasted as long as six months.

Not terminated

Of the 61 patients who constituted this group, only 62% continued the pregnancy and had a live baby. 23 (38%) had an abortion in one way or another, and three cases had a

premature delivery and/or a still birth. Furthermore, of the ones who continued their pregnancy, a further nine (16%) had the baby adopted or fostered. In other words, less than half the patients of the group continued their pregnancy and kept their baby.

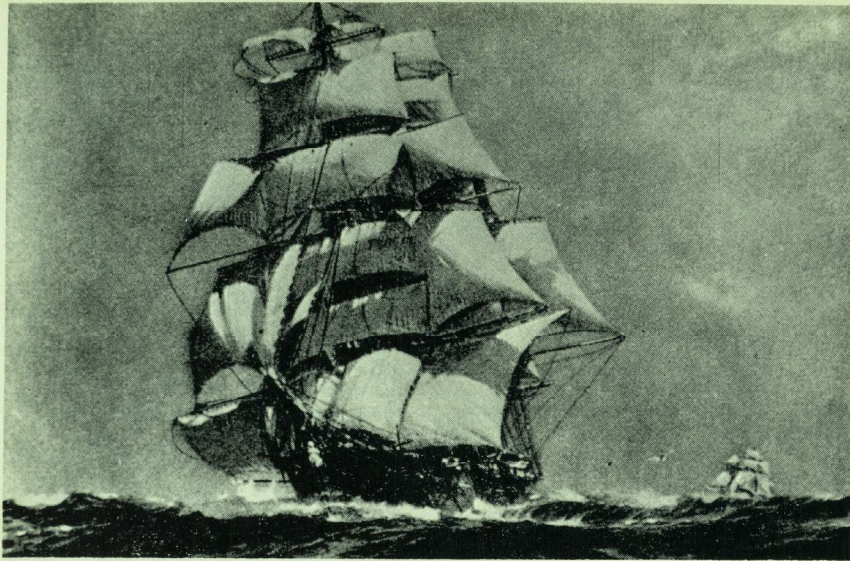
Looking at the possible reasons for these figures, social factors seem to come in strongly. If you take the women who are married, with reasonably stable homes, two-thirds of these took my advice, continued their pregnancy, accepted the baby, and were glad to have it. On the other hand, patients who were either single or estranged from their husbands only continued the pregnancy and kept their baby in one-quarter of the cases. In other words, the great majority of single women or women estranged from their husbands who come to me wanting to get rid of their baby will do so regardless of what my opinion is.

	TERMINATION REFUSED			TOTAL
	Kept Baby	Abortion/ Stillbirth	Adopted/ Fostered	
All patients	28	23	10	61
Single/estranged women	8	15	9	32
Stable marriage	20	8	1	29

Whereas patients terminated on my advice had no serious ill-effects, this was far from the case in those to whom I refused termination. Two patients of the 61 can be said to have been disasters. Both of these women, one married and one single, kept their baby on my advice and fully accepted it, but though they were perfectly well and free from psychiatric symptoms before the pregnancy, they developed quite serious and relatively disabling neurotic symptoms as a consequence of the stress of looking after the child, and two and four years later were still requiring regular support and treatment.

Two other patients died, though neither case was the direct result of the illegal abortion they obtained. One patient had a history of depression, developed a relapse following her illegal abortion, and within two months committed suicide. Another single woman, who had a history of mild episodic asthma, developed a sudden attack of status asthmaticus four months after her illegal abortion and died before she could be admitted to hospital.

With such a small sample it is easy to make false deductions and we are in the process of extending the follow-up by a further 150 cases.



The tea clippers Ariel and Taeping racing up the English Channel in the great race of 1866

In praise of Shen Nung

by our tea correspondent

"Tea is better than Wine, for it leadeth not to intoxication, neither does it cause a man to say foolish things and repent thereof in his sober moments."

The Emperor Shen Nung has been described as the first ever experimental pharmacologist, having discovered the medicinal qualities of many hundreds of herbs. He was years ahead of his time in that he always boiled his drinking water. According to a Chinese legend he was sitting by his fire one spring evening in 2737 B.C. waiting for the water to boil when some scorched leaves from the branches of *Camellia sinensis*, which he was burning, rose up with the smoke and came down into the water. Liking the aroma, and possessing an inquiring mind, he sampled the world's first brew of tea.

The Japanese and Indians have far less likely stories to account for its discovery.

For many hundreds of years tea was regarded purely as a medicine but by the year 780 A.D. when Lu Yu, a self-educated man, wrote the *Ch'a Ching*, people were drinking it for pleasure. In this book, Lu Yu described how tea should be grown, manufactured, infused and drunk. Tea drinking was an elaborate ceremony for the Chinese—as it is today for

the Japanese—and was practically a part of their religion.

The first reference by a European to tea was made by an Italian in 1559. He quoted a Mohammedan trader: "They take of that herb, whether dry or fresh, and boil it well in water. One or two cups of this decoction taken on an empty stomach removes fever, headache, stomach-ache, pain in the side or in the joints, and it should be taken as hot as you can bear it. He said besides that it was good for no end of other ailments which he could not remember, but gout was one of them".

Queen Elizabeth

In 1600 Queen Elizabeth granted a monopoly of all trade between the Cape of Good Hope and the Straits of Magellan to the Honourable East India Company so that they might trade with China and bring tea to England to satisfy the demands of the now wealthy upper classes. Five ships (ranging from 130 to 600 tons) set sail in February 1601 and arrived at the north-west tip of Sumatra in June 1602. There had been very many cases of scurvy on board and the men were all very weak. They therefore returned to England after setting up a factory ashore—"factory" meant offices, store rooms and living accommodation.

Ships went out most years till 1615 by which time factories had been established in India (seven), Siam, Sumatra (three), Java (two), Borneo, the Spice Islands and Japan. The Company was then poised to start trading with China but making contact with the Emperor proved to be difficult. When King James I sent him a letter in 1617 it was not delivered because no Chinese would risk the death penalty attached to translating it and because no Christians were allowed to travel inside the country.

The Portuguese merchants in Macao had the sole trading rights and when a private expedition under Captain John Weddell arrived there in 1637 they were not permitted to trade. The English forced the issue and tried to bargain direct with the Chinese. They met with open hostilities and left without having conducted any business, except the restocking with food of their ship. Whilst ashore, though, one of the crew, a man by the name of Peter Mundy, was given "a certaine drinke called Chaa, which is only water with a kind of herbe boyled in it. It must be drank warme and is accepted wholesome".

Tea eventually reached England about 1650. It was brought by Chinese junks to Java and

Sumatra where it was sold to Dutch traders who exported it to us via France. In September 1658 Thomas Garway published the announcement: "That excellent and by all Physicians approved drink called by the Chinese Tcha, by other nations Tay alias Tea, is sold at the Sultaness Head, a cophee house in Sweetings Rents by the Royal Exchange London". This was the first unquestionable reference to tea drinking in England and is now in the British Museum. He followed this announcement in 1660 with a broadsheet praising tea:

"The drink is declared to be most wholesome, preserving in perfect health until extreme Old Age. It maketh the Body Active and Lusty. It helpeth the headache, giddiness and heaviness therof. It removeth the Obstructions of the Spleen. It is very good against the Stone and Gravel, cleansing the Kidneys and Uriters. It removeth Lassitude, and cleareth and purifieth adult Humors and a hot Liver. It is good against Crudities, strengthening the Ventricle or Stomack, causing good Appetite and Digestion. It vanquisheth heavy Dreams, easeth the Brain, and strengtheneth the Memory. It overcometh superfluous Sleep, and prevents sleepiness in general, a draught of the Infusion being taken, so that without trouble whole nights may be spent in study without hurt to the Body, in that it moderately heateth and bindeth the mouth of the stomach. It strengtheneth the inward parts, and prevents consumption, and powerfully assuageth the pains of the Bowels, or griping of the Guts or looseness. It is good for Colds, Dropsies and Scurveys, if properly infused purging the Blood of Sweat and Urine, and expelleth Infection. It driveth away all pains in the Collick proceeding from Wind, and purgeth safely the Gall."

The first reference to a Civil Servant drinking tea in his office is in Samuel Pepys's diary for 28th September 1660: "I did send for a cup of tea (a China drink) of which I had never drank before". Such coffee-house tea attracted a tax of 2s. a gallon and could be drunk on the premises or taken away for rewarming.

In 1685 the Emperor decided to let in English merchants and in 1689 we imported tea direct from China for the first time. It came from Amoy—the dialect word for tea here is *l'e* (pronounced tay); *ch'a* is the Cantonese word, and these are the derivations of "tea" and "char" in the English language.

Trade was almost immediately restricted to Canton and ships were compelled to unload thirteen miles down river from the town.

Factories were allowed only in a specified area outside the walled city and there were also severe restrictions on the private lives of the merchants. All business had to be conducted with the official monopoly known as the Co-Hong and all complaints to higher authority had to be passed to them for forwarding—they were therefore never forwarded!

The Hoppo (English corruption of Hai Kwan Pu) was appointed by the Emperor to send money to him, the sum to be sent depending on the tonnage of foreign ships in port. The Hoppo's salary came from the eight Hong merchants whom he appointed. Dr. Morrison, the East India Company's interpreter, calculated that the Hong merchants paid the Hoppo at least £140,000 a year—£56,000 as presents "for the Emperor", £14,000 as presents for the Hoppo himself, £14,000 as "tips for other officials", £10,000 to the Yellow River Charity (i.e. the Hoppo) and £46,000 for the compulsory purchase of Ginseng (a medicinal root). These figures are quoted from J. M. Scott's excellent book "The Tea Story".

A Hong merchant was responsible for the behaviour of the crew of certain ships assigned to him by the Hoppo and he risked imprisonment or even death if they misbehaved, although he had no direct authority over them. However the traders, being English, responded to the appeals of these men and behaved themselves.

A Hong merchant occasionally went bankrupt and could not meet his commitments to the English merchants who would then be paid out of the Consol Fund. This was comprised of taxes 3-6 per cent. levied on all goods passing through the customs, the taxes of course being paid by the English.

duty

In 1680 the Revenue authorities in England slapped a duty of 5s. a pound on all tea, regardless of quality. This made little difference to the good tea (60s. increased to 65s.) but the cheap tea leapt in price to 7s. a pound—nearly as much as a labourer could earn in a week. On the Continent there was no duty and so, with a 350 per cent. profit margin, it was only natural that tea should cross the Channel or the North Sea to be picked up by off-shore fishing boats under cover of darkness. Practically everyone was on the side of the smuggler, and the authorities were largely ineffective because of bad communications and a shortage

of preventive officers who were but poorly paid for risking their lives.

Smuggling was rife right along the south and east coasts of England. When the Isle of Man passed to the Dukes of Athol in 1735 it took advantage of a special privilege it held by royal charter which exempted it from duty on, amongst other commodities, tea. Therefore ships bound for Bristol or Liverpool would often dock there instead, and smugglers would then transport the tea to the Cumberland coast or to Ireland. It is said that many of the fine houses along our coasts were built with the proceeds of smuggling.

In 1784 Pitt repealed the high duties and compelled the Honourable East India Company to import enough to satisfy public demand without resorting to price increases. Smuggling ceased.

By 1725 we had imported a total of only 250,000 lb. of tea. Eighty years later we imported 24,000,000 lb. a year, most of it bought for silver as the Chinese in sunny Canton had little need of our fine woollen cloth.

opium

In his book "Foreign Mud" Maurice Collis gives the following figures for the Company's transactions with China in 1836. Imported to China: Western goods, 2½m. dollars. Exported from China: Tea, 8m. dollars; Silver, 1m. dollars. There should have been an adverse trade balance of 5½m. dollars, so where did the 1m. dollars worth of silver come from? Basically, this came from opium.

The East India Company held a monopoly of Indian grown opium and they sold the crop each year at auctions in Calcutta. That was where their responsibilities ended, they said. The country firms—British and Parsee firms with offices in India—bought the opium from the company and sold it to the Chinese. In 1831 their figures were: Imported to China: Cottons, 4m. dollars; Spices, etc., 2m. dollars; Opium, 11m. dollars. Total: 17m. dollars. Exported from China: Various goods, 5m. dollars; Silver, 12m. dollars. They thus had a favourable balance of 12m. dollars and they let the Company use as much of this silver as they wanted against bills on London to avoid the risky business of transporting bullion.

Importing opium into China was strictly illegal and so it was smuggled in through Canton or was unloaded elsewhere along the coast—also illegal. But the authorities were all

so corrupt that smuggling on such a vast scale was conducted peacefully.

Sir Joseph Banks recorded the finding of indigenous tea in India in 1778. In the late 1820's a specimen of tea was sent from Assam to the Director of the Government's Botanical Gardens at Calcutta but he said it was not tea but a *Camellia*. Tea is in fact *Camellia sinensis* but as the sample was rejected and as no-one believed Bank's report the Tea Committee set up by the Governor General in 1834, had to send to China for tea seeds, and had to rely on a questionnaire to find suitable tea-growing districts. However, tea plants, seeds and manufactured leaves were later sent from Assam and the Government Botanist was at last satisfied.

It was still thought that China tea was superior and so land was planted with this seed by the Government. In 1838 the Government scheme was turned over to private enterprise but because of poor soil, a poor climate and ignorance it had very nearly failed by 1846. The following year it made a profit for the first time and after Assam prosperity came gradually to the Himalaya, Nilgiris and other Indian plantations. China was not much interested in trade and India soon became the greatest tea-exporting country in the world.

In 1833 the Dutch tried growing tea from China in Java but for fifteen years they failed. They had much greater success when they used tea from Assam.

Most of the tea plants of commerce are of the species *Camellia sinensis*. There are three varieties: *sinensis*, *assamica* and *cambodiensis*. Such strict botanical classification is not of use to the planter, who recognises four main groups or jats of tea plants—the China (which if not pruned will grow to about eight feet in height), the Cambodian (sixteen feet), the Assam (sixty feet) and the Hybrid. The last is a cross between any of the others. In the Assam group there are five sub-groups: the Lushai, the Burma, the Manipuri, the light-leaved and the dark-leaved Assam, and these plants are particularly hardy.

In 1851 the Assam Company was doing well. Army officers and other men out in India got the impression that running a tea estate would be a gentlemanly occupation offering a lot of leisure time, long holidays and a good safe financial return. People in England wanted to join in the apparently certain success of tea and put a lot of money into it, and in the late 1860's the tea estates with their amateur managers failed miserably. Millions of pounds were involved and thousands of people lost all

they had. The tea industry was very nearly killed.

In 1740 the Dutch started cultivating coffee in Ceylon but they used low-lying land and failed. Then the British took over, and opened up the interior and planted on the hills. They were very successful and had 275,000 acres by 1877 when the fungus *Hemelia vastatrix* struck the trees and within a few years the industry was wiped out. The planters were ruined and most of them left the island. Some grew *Cinchona* as quinine sold at Rs. 11 an ounce but the price dropped to Rs. 1 an ounce and the profits went. A few then planted some Assam tea and this flourished. The first Ceylon tea was sold in London in 1891.

Since then tea has been grown commercially in Russian Transcaucasia, Natal, Nyasaland, Kenya, Uganda, and on a small scale in Thailand and Burma. It has been grown in many European countries, including England. It has been tried in Borneo, the Philippines, Fiji, Mauritius, Jamaica, Cayenne, and Puerto Rico. It has done well in Brazil, and will grow in South Carolina (but labour costs are too high there).

Dr. Johnson

Dr. Johnson said of tea that "It's proper use is to amuse the idle, and relax the studious, and dilute the full meals of those who cannot use exercise, and will not use abstinence". Whatever its appeal to man, it is now drunk all over the world. In next month's Journal I will describe how tea is grown today, how it is made into the various types and how it is blended. I will also endeavour to explain the pleasures to be obtained from drinking the various teas in an attempt to interest more people in this noblest of all drinks which, in the words of its discoverer "is better than wine for it leadeth not to intoxication, neither does it cause a man to say foolish things and repent thereof in his sober moments".

Acknowledgements:

"The Tea Story", by J. M. Scott, W. Heine-mann 1964.
 "Foreign Mud", by Maurice Collis, Faber and Faber 1945.
 "Travels of Peter Mundy", by Peter Mundy. Hackluyt Society 1919.
 Photographs by courtesy of Messrs. Brooke Bond Liebig.



Case of cancer of the Scrotum—H. R. 9. 8. 68

cancer of the scrotum

a review and case report

by Clive Froggatt

Cancer of the Scrotum is an industrial disease with poor prognosis. In days gone by, chimney sweeps were at risk. Nowadays the incidence is widespread.

History

In 1775, one of Bart's greatest surgeons, Percivall Pott, wrote the first classical description of a cancer of the scrotum, which had been caused by soot: this was the first report of an industrial disease. Pott described the lesion as "a superficial, painful, ragged, ill-looking sore with hard and rising edges: the trade call it a soot-wart . . . generally taken, both by patient and surgeon as venereal". He noted also, the increased incidence of the lesion in chimney sweeps, and suggested that the cancer was caused by soot collecting in the rugae of the scrotum.

Later, Nélaton (1855) drew attention to a patient in France with cancer of the scrotum, who was not a chimney sweep. Subsequently, Volkmann (1875) cited three cases of the disease in workers who had been employed in the German brown coal tar distillery for long periods; and in 1876, Bell recorded a case of scrotal cancer in a Scottish shale oil worker.

In 1907 the disease was defined for statutory purposes as "a scrotal epithelioma, occurring in chimney sweeps, and epitheliomatous cancer

or ulceration of the skin occurring in the handling or use of pitch, tar and tarry compounds". As a supplement to this list of carcinogens was added in 1914 and included bitumen, mineral oil and paraffin.

Southam and Wilson (1922) published a paper in which they drew attention to the increased incidence of scrotal cancer in mule-spinners of the Lancashire cotton-mills. (Mule-spinners have to bend over a horizontal bar which is constantly moist with oil. This results in the clothing over the lower abdomen and upper part of the thigh being soaked in oil).

Aetiology

The actual pathogenesis of cancer of the scrotum is unknown. After Pott (1775) postulated that soot collecting in the rugae of the scrotum was the causative factor, Bell stated that this was quite obviously the case, since other occupations where contact with soot occurred also had an increased incidence of cancer of the scrotum: though Cooper (1830) favoured an individual predisposition to cancer, together with skin irritation, being the main causative factors.

Volkmann (1875) was the first to report an experimentally produced cancer of the scrotum. His experiment involved a continued application of the carcinogen, in this case paraffin, to the scrotum of a rat. This experiment was repeated successfully several times. Tamagura and Ichikawa (1915) used tar on a rabbit's ear. Passey (1921) used mice and the ether-soluble fraction of soot. Leitch and Kennaway (1923) used arsenic and crude shale oil. (This followed Southam and Wilson's paper on "mule-spinners" cancer"). Later Leitch recognised soot as an aetiological factor in cancer of chimney sweeps: he postulated that soot was dissolved by the oily secretions of the sebaceous glands.

In the same year, 1924, Sir Ernest Kennaway, whilst working at Bart's, discovered 3:4 benzpyrene in pitch, which he recognised as being very carcinogenic. This was followed in 1932 by Cook, Heigen and Howett isolating the same substance from tar, and in 1943 by Berenblum and Schoental isolating 3:4 benzpyrene from Scottish shale oil.

3:4 benzpyrene has now also been isolated

from soot which is up to 40% tar. Tar, mineral oil, anthracene, creosote, pitch and shale oil have been shown to cause cancer.

Age of Onset and Lag Period

Percival Pott in his original work said that he "never saw it under the age of puberty", but Sir James Earle wrote up a case of a young boy, 8 years old, who was apprenticed to a chimney sweeper and who came to him at St. Bartholomew's Hospital. Sir Percivall Pott examined the child and they agreed that the child had contracted cancer of the scrotum.

In 1832, Henry Earle (son of Sir James Earle and grandson of Sir Percivall Pott) noted a delay of 15 years between time of exposure to soot and the onset of the disease in a sweep.

Henry gives an account of a case where a man who commenced work in the cotton mills in 1866 at the age of 6 years, developed a cancer of the scrotum 69 years later at the age of 75 years.

It appears that the greater proportion of cases occur about 50 years after exposure, though the onset may be as long as 75 years after exposure or as short as 16 years after exposure, in cases of chimney-sweeps cancer. Earlier, however, Butlin (1892) suggested that the most common time of onset was 20 years after exposure and that the men affected were usually between 40 and 50 years old (though Henry reported a case diagnosed in a man of 91 years).

Incidence

During the days of the chimney-sweepers, the scrotal cancer was relatively uncommon other than in England. However, the incidence in England seems to have diminished with improved conditions.

In 1914, Henper published figures for St. Bartholomew's Hospital which showed that between 1910 and 1912, 23 out of 107 deaths of chimney-sweeps were due to cancer of the scrotum.

Kennaway followed this, in 1924, by figures for England and Wales. This showed that

deaths from chimney-sweepers' cancer were; 1910-12: 16 deaths; 1913-14: 7 deaths; 1921-22: 10 deaths; 1923: 4 deaths. These figures did not support the hypothesis that chimney sweepers' cancer was diminishing in incidence.

In a later report figures for 1911-1935 were given: out of a population of 5,274 chimney sweeps there were 100 deaths from cancer of the scrotum, a significantly higher incidence than in the general population.

In 1943 the incidence in the general population was 4.2 per million. This figure rose to 75.4 per million for workers in the treatment of non-metalliferous wine and quarry products, that is, the manufacture of coal gas, coke and patent fuel. The figure fell to 11 per million for chimney sweeps and to 4.8 per million for stationary engine drivers, dynamo and motor attendants.

It was recently reported by Brown and Thornton that at St. Bartholomew's Hospital during the years 1948-1952, out of about 5,000 cases of cancer, there was only one case of chimney-sweepers' cancer. The decreased incidence being due to improved hygiene in all probability, and better chimney cleaning methods.

Pathology

The squamous-cell carcinoma is the most malignant neoplasm of the scrotum.

The classical chimney-sweepers' cancer is now superseded by that caused in workers in industry who come in contact with tar, paraffin and mineral oil.

Commonly, the cancer begins as a painless wart-like hyperkeratotic area. The lesions may be multiple but only one necessarily becomes malignant. The 'wart' enlarges and ulcerates producing the characteristic appearance of a carcinomatous ulcer. Spread is usually local, into the surrounding skin and adjacent structures.

Metastasis usually occurs within nine months to one year. In most cases, metastasis disseminates to the inguinal nodes via the lymphatics draining the scrotum. (Graves and Flo (1946): in 10 out of 14 cases; Dean (1948): in 16 out of 27 cases; Leone and Denhold (1959): in 3 out of 10 cases). Distal metastasis to the para-aortic nodes also occurs.

Henry Earle (1823) found lymph nodes were often enlarged, but would generally subside after excision of the scrotal lesion.

If secondary infection is superimposed as it frequently is, inflammatory lymphadenopathy is seen and needle biopsy of nodes is indicated before radical surgery.

Treatment

Percivall Pott was the first to recommend local excision of the tumour though he was uncertain as to the value of such a procedure. The treatment of choice is still surgical. Wide excision and bilateral inguinal clearance is advocated together with removal of the penis and bilateral orchidectomy if the disease is advanced.

Response of the neoplasm to radiotherapy is poor. It is thought that groin metastatic lesions are radio-resistant.

Prognosis

The prognosis is generally poor with a five year survival rate of less than 50% with the very few figures available.

Local recurrences are not unusual.

Case Report

A 49-year-old Experimental Plant Operator (see below) was referred to St. Bartholomew's Hospital in August 1968. Eighteen months previously he had noticed a small spot on the left side of his scrotum which had become progressively bigger and developed into a large, painless ulcerated mass. Two months prior to admission it had begun to ooze a whitish fluid and he wrapped the scrotum in a piece of rag and a polythene bag. Two days before admission the ulcer began to bleed from the anterior border, which led the patient to seek medical advice.

Apart from the obvious mass, the patient was asymptomatic; there had been no change in weight nor bowel habit.

The patient's occupations, other than Experimental Plant Operator, were as a tool-setter in a number of engineering firms over a period of 20 years, and as a window cleaner for 5 years. On admission the patient had been in his present occupation for 3 years. His job involved grinding down various mineral ores, such as tin, for mineral analysis. He had no contact with oil. Whilst he was an engineer however, he admitted to being in almost continual contact with oil. As a tool-setter his clothing was almost always soaked in a soluble

oil used on the machines. During these 20 years in the engineering industry the patient lived in an old house without a bathroom where his standards of hygiene were inevitably not very high.

On examination the patient was thin and was obviously of a limited I.O. In the general examination of the systems nothing of significance was noted.

The scrotum was seen to have a large, foul-smelling, papilliferous ulcer on the left side, three inches in diameter. There was evidence of bleeding from the anterior edge but no evidence of gross infection. The penis and right side of the scrotum were normal, the right testis was larger than the left, both testes having normal sensation. The inguinal glands on both sides were easily palpable, firm and mobile; they were slightly tender on the left side.

A biopsy of the ulcer was taken and this showed a well-differentiated squamous cell carcinoma. A bacteriological report on a swab taken of the whitish fluid oozing from the ulcer showed *Coliform* bacilli.

It was decided to operate and Mr. E. G. Tuckwell performed a wide excision of the scrotum, superficial clearance the left inguinal nodes and bilateral orchidectomy.

Post-operatively, a lymphangiogram showed a chronic inflammatory process in all the inguinal nodes and one node showed two cortical defects which were suspicious of secondary deposits though in view of the inflammatory characteristics a certain diagnosis could not be made.

The histological report on the excised specimen showed a very well-differentiated squamous cell carcinoma of the scrotum. The five inguinal lymph nodes examined, showed a reactive follicular hyperplasia and sinus histiocytosis but no sign of secondary deposits. Both testes appeared normal though there was some depression of spermatogenesis in the left testis.

The patient made a good post-operative recovery.

Discussion

With the past history of 20 years working in close contact with soluble oil (which has mineral oil as a base), and a lag period of 8 years, it may be suggested tentatively, that this cancer is industrial in origin. Certainly the

presentation is similar to many other cases of cancer of the scrotum and with the concurrent poor hygiene and lower intelligence of the patient, the likelihood of such an occurrence is somewhat increased.

This link, however, like many other occupational diseases cannot be established positively, merely suggested. The lesion in this case may be of an entirely different aetiology and non-occupational in origin.

Apart from possibly contributing to the causation of this lesion, the patient's poor hygiene may also have possibly played some part in halting metastasis. (No inguinal nodes showed signs of chronic inflammation and there is some evidence to suggest that lymph nodes thus affected are more resistant to secondary tumour formation.)

In view of the length of the history and the histological evidence for a well-differentiated carcinoma, the prognosis in this case is better than in many other cases of scrotal cancer.

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I would like to record my thanks to Mr. E. G. Tuckwell and Mr. J. Neely for reading the proofs, Mrs. M. Jones for typing out the article and the Library Staff for their valuable assistance in obtaining articles and references for my use.

EDITORIAL · OPINION · EDITORIAL · OPINION · EDITORIAL

Abortion

We present in this issue a variety of views. Abortion like narcotic drugs is a fact of life, and will continue to the end of time regardless of legislation.

Sir Roger Ormrod, Q.C., points out that once an abortive drug appears, it will become a substitute for "the pill". The distinction between the fertilised and unfertilised egg will fade, and the argument on the ethics of abortion will be over.

We feel that the 1967 Abortion Act is a new attempt to control the problem; but are not sure it goes far enough. Psychiatric evidence suggests that withholding an abortion from a woman who wants one is a hazardous step. Men are hardly the right people to make a decision on a subject that is so wholly female.

Students' Union

The Students' Union has been accused of clandestine activity. Its role has been called into question. The Union must rise to meet the challenge. Any public body is open to criticism, and must be prepared to justify itself. The *Journal* offers space as a forum for the controversy.

EDITORIAL · OPINION · EDITORIAL · OPINION · EDITORIAL



Smithfield in 1905

Journal rundown

by Jim Drynan

This Journal has existed for 75 years. Jim Drynan speculates on its survival.

Speculating on peoples attitude to the Journal, one is soon forced to the not unsurprising conclusion, that they are not overconcerned, I think though, there would be some reaction if the Journal ceased to appear: this is the situation that we may well be faced with in the not too distant future, either this or a radical alteration of it's present form.

reasons

The reasons for this are mainly financial and are a reflection of whether or not the Journal can move with the times. If one looks at the first volume of the Journal, a copy is in the Library and a selection from it was reprinted in the October Anniversary issue, one sees striking similarities to the present day issues: Society reports were there (one may add that the present day equivalents don't seem to have such well-documented proceedings). Sports News, Announcements, Articles and Clinical material, it was all much the same, the beautiful hand-set type has gone and there are more

illustrations—these are the only changes. I haven't considered the managerial side of it, lacking first-hand information but at a price of sixpence a copy the editor was paid an annual salary of thirty pounds, one may conjecture that their financial position was healthier than it is today.

Of course there have been changes but these have been mainly of a technical nature, my contention is that the Journal can no longer be run on 1893 lines, which is what we are trying to do at the moment, more importantly it shouldn't be run on these lines and we are already aware that we can't sell it on these lines.

Other Hospital journals have experienced the difficulty too, we have perhaps survived it better than most, still publishing once a month, the Guys Gazette is published fortnightly but is a very much smaller publication, a cyclo-styled weekly called "Probe" ran for a year at U.C.H. and was a best-seller, so it can still be done.

Any changes, however, must be seen against the present position of the Journal, in the financial sense and in the sense of it's position within the "Hospital apparatus". Both of these are curious and precarious as befits seventy-five years of existence and efforts to maintain this existence.

finance

Financial Position:

Cost to produce 2,000 copies ...	£260
i.e. 2s. 7d. a copy	
Postage etc.	£30
	£290

Income:

Advertising ...	£100
Students at 1s. a copy ...	£30
Subscribers ...	£125
	£255

— on top of this there is the cost of block-making, distribution and other incidentals.

— there is also some income from the Board of Governors and also from sales within the Hospital, these amount to at best, 100 to nurses during the winter months and about another 50 to staff, there are also about 20 copies stolen a month.

Points that arise are that:—

1. Students don't pay the full cost of the Journal they receive but against this is a guaranteed income from all of them.
2. Out of a total of around 800 nurses only about 10 per cent. subscribe.
3. Out of at least a thousand (exact figures are not available at the moment) people working in the Hospital and Medical School only 5 per cent. subscribe.

Looking at this, it is obvious that there is little room for manouevring, the use of coloured paper, increasing the size of the Journal and other desirable activities become out of the question except under very exceptional conditions.

subscribers

The position is made worse when one considers that the number of subscribers is diminishing rather than increasing. When notice was given that the subscription rate was to be increased 150 or so subscribers cancelled their orders. The letters we received from some were not encouraging, possibly we could have successfully sued for damages in some cases.

The Journal is I think officially a sub-committee of the Students' Union but in practical terms is a semi-autonomous body responsible to a Publication Committee. However, since it draws in minor part some of it's financial support from the Students' Union and some from the Hospital it cannot publish what it likes, which is regrettable in any organisation since it stultifies thought and is contrary to principles of freedom of voice. The Journal's premises are "owned" by the Library.

To continue to exist or to have it's existence suffered the Journal must demonstrably pay it's way: to do so changes must be made and I see no reason why these changes shouldn't be for the better, indeed changes for the worse are completely out of the question—we lack money to be able to make them for one thing. For example, halving the number of pages would reduce costs by only one third and would be bound to result in less advertising revenue in the long term, only making the position worse; having a two-monthly publication would only mean that problems would take take that much longer to arise, advertising would drop again and printing rates would

rise into the bargain, the question of amalgamation with another Hospital magazine would besides the administrative difficulties that would necessarily follow only leave two sets of problems instead of one and lose subscribers who profess to like the "parochial" (sic) quality of the magazine.

On the other hand, increasing circulation by a thousand would cost a further £65 but would produce an income of £125 and I am tempted to think would encourage more advertising; at least it could be suggested to potential advertisers that it is an expanding, dynamic magazine.

This sounds all very well and would indeed solve a lot of problems. But in aiming the Journal at the 1,750 or so people in the Hospital who at the moment don't take it, additional problems are involved: the Journal then has to include material of special interest to them. Of these people the nurses are the largest easily defineable group the rest tend to become a rather amorphous group, difficult to trace and difficult to sell to directly. It would be helpful here if a list of all the people working in the Hospital was forthcoming. Outside volunteers from different departments should be recruited onto the Journal staff for selling purposes as much as possible.

posters

A start at publicity for the Journal which is patently essential has been made with a poster campaign but this in itself is useless unless it can be followed up and here help is needed; anyone who would lament the passing of the Journal can do something to help maintain it. This would only involve one afternoon a month but it is essential that this should be the afternoon of publication, the 1st of the month.

On the literary side there are so few articles forthcoming from students or anyone else that one might conjecture that this is a true reflection of the literary potential of the Hospital: I am inclined to disbelieve this and would accept some of the blame at the Journal door on the grounds that it is only indolence on the Journal's part that stops us going out to get articles. There is also an understandable reluctance on some people's part to see their name in print, everyone has experienced the feeling of satisfaction of rushing off an article to meet the deadline, then you see the proofs and think "Christ did I write that?", the thing to do is not to keep a copy and just wait for it

to come out in print. It's only by seeing it in print that it gets better, the next time.

criticism

One feature is entirely lacking in the *Journal* at the moment and that is criticism, it's not so far wrong to say that it's entirely lacking throughout the Hospital: basically this is due to the non-availability of information about Hospital policy and decisions taken which affect the work of everyone within the Hospital. This is wrong and the *Journal* is the place for information to be released, perhaps one could even hope for discussion to feature on its pages. This sort of thing would increase the readability of the *Journal* and its appeal maybe the day will come when there is a "hot-line" between James Gibbs House and the *Journal* office—should we ever get a telephone:

— "the 'phone goes, 'Hullo—night editor, 'I'm slapping a D notice on that article about _____."

The *Journal* leads with its next issue, "Journal tried for treasonable activities—sentence to follow—read next month's inside article."

patients

However, intrigues must wait, the difficulties of selling are still with us. The Women's Guild very kindly agreed to distribute some copies to the patients of the October Anniversary issue, this had no medical material in it; I am afraid I have no idea of the success of their efforts but as a general rule I can see no real reason why the *Journal* shouldn't regularly be sold to patients. It has been argued that it is upsetting for the patients to read about their diseases. I don't see that it is any more upsetting to read about them in the *Journal* than in the popular press, the *Journal* having the advantage that its articles are informed and, we trust, accurate. In any case the number of articles which are about specific diseases are negligible and would contribute to the patients understanding of his disease rather than anything else. Patients are also for the most part bored whilst they are in Hospital and would be glad of something concerning the Hospital to read, the number of people I have come across wading through a "History of the Hospital" is remarkable. There are plenty of macabre things in Hospitals

already and I don't think this would be adding to them.

The *Journal* could even take on a "souvenir character" with perhaps Journal-sponsored sticks of rock with the "Royal and Ancient Hospital" or something written inside for the Children's Wards. Great improvements in the holiday spirit of the wards could be made by these means.

ambulances

A technical difficulty of course is in the selling: does one go round with a white coat, stencilled JOURNAL on the back of course, and a bag shouting out Jee-er-ner, lay-est or something equally unpronounceable, I doubt this would be consistent with appearing gravely at the bed-side with the tubes ten minutes later. The Women's Guild trolleys have the edge here, their mobility is a highly impressive quality to a static audience, who feel they must buy whatever it is before the trolley disappears. An extension of this idea was sticking the posters on the sides of ambulances—with the blue light flashing and the bell going, it would be unbeatable publicity, the *Evening News* would just have to stand down.

Newspapers as such have an advantage over the *Journal* in their disposability, once bought the *Journal* tends to be kept and thus read by everyone without going to the trouble of buying their own. The reasoning here is simple you can't use a *Journal* for anything else, it's no good as a packing material, only a tramp addicted to exposure would sleep in it and it's not even satisfactory for wrapping potato peelings in, perhaps we should impregnate it with something that makes it the ideal material for lighting fires. On the other hand a newspaper costs you 5d. a day, 2s. 6d. a week, at least 10s. a month, it's the question of spending 2s. 6d. all in one go.

change

Whatever the price the *Journal* cannot seriously expect to compete with newspapers and doesn't cater for the same demand; it is and I hope remains the organ of communication of the Hospital, where anyone's views may be represented freely and be open to comment. That it is a student organisation should not mean that it is of no interest to others, nor preclude them from contributing. To maintain these ideas the *Journal* has to change but it has not to disappear.

book reviews

The Older Patient—introduction to geriatrics, by R. E. Irvine, M. K. Bagnall, B. J. Smith. E.U.P. Price: 32s. 6d.

This is a comprehensive book, dealing with all the medical and social problems of the older patient. It provides a good foundation of the basic facts, and will help nurses to gain an insight into geriatric problems. Each chapter is set out in a clear, concise fashion, under well-marked headings, making for easy reading and reference. Diagram and index are helpful.

Questions and Answers on Mental Nursing for Pupil Nurses, by John Michael Andrews, Edward Arnold Ltd. Price: 7s. 6d.

Clear and concise, but answers to questions do appear to be over-simplified on occasions. Compact and useful little book, primarily intended for pupil psychiatric nurses, but would be helpful for reference to student nurses in general training.

theatre review

hair—shaftsbury theatre

Hair is genuinely entertaining; if nothing else it is spectacular and very funny. Familiar scenes of the longhairs going through their obscure routines, which must have puzzled many a Bart's party-goer in the past, are enacted almost tastefully. The swearing must excite admiration, each syllable enunciated perfectly each idea perfectly obscene, this is swearing at its best and most insulting.

The dancing is delightful, it looks spontaneous, it looks fun and yet the stage is always filled, the eye always tantalised. The erotic attraction must not be overlooked, men and women both get a square deal out of Hair, superb specimens of both sexes being displayed

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amply from every angle. The all prevailing sexual suggestion is total.

There are certain bad parts, some of the songs are badly written, badly arranged and badly sung. Invariably any serious messages are badly expressed. The greatest shame was a song called "Easy to be hard" a beautiful melody, with important punchy lyrics sung by a woman, who had obviously trained with a view to the "Under water singing Olympics"

What about "The Scene",? Neither my companion or I were aware of it for long enough to comment, from where I was sitting they could have been cheating. The stage was in fact so dark at this point that they could have engaged the governing board of St. Thomas's Hospital to do the scene and no one would have been any the wiser.

Value for money? Good. Ditch the traditional Saturday treat of a bouquet of flowers and three hours chewing toffees in the "Roxy" and take the wife. Not recommended for children under the age of three or over the age of seventy because they may wet themselves during some of the scenes.

Malcolm Fletcher

correspondence

staff to the same subject is most enlightening and often entertaining!

We note with pleasure that the course is in keeping with many of the suggestions made in the recent Report of the Royal Commission on Medical Education.

Ward work, outpatients, seminars, discussions, G.P. work and weekly visits to other hospitals and psychiatric centres form the basis of an extremely full and enjoyable week.

Psychiatry has at last been allowed its proper place in our clinical course, and how well it has been put there.

Yours sincerely,

J. MACKINNON and

P. DIEPPE.



first impressions

Sir,—Our immediate (and most lasting) impression on arrival at Bart's was that the Medical College and Hospital, with the Meat Market, is a world of its own. This feeling is enhanced by the quietness of the area, especially at night, and the sense of complete isolation from the rest of London.

We expected—and indeed found—an institution with many traditions, which were emphasised by the greeting we received at the fresher's tea. However any sense of communion with the past is quickly lost once life is started in Charterhouse Square, for lecture theatres and the Hall of Residence, with their typically characterless modern design, are rapidly destroying the uniqueness of Bart's in this respect.

Perhaps our impression of the "difference" of Bart's was supported by the friendliness and

congratulations to psychiatry

Abernethian Room
29th October, 1968

Sir,—We would like to congratulate the Department of Psychological Medicine on arranging such an interesting and stimulating course for the 2nd year clinical students.

The variety of the course is its strength. Those called upon to teach are friendly, controversial and willing to accept disagreement. The different approach of each member of

lack of formality in the first three days before term proper started, when clinicals especially seemed to make every effort to help us get settled in as soon as possible. This assistance we found necessary in helping us to find our feet, although as far as social activities were concerned the Fresher's Handbook was more than adequate.

However, neither the handbook sent to prospective students, nor the Fresher's guide, gave us any indication of the money which we would have to spend in the first week buying books, paper and bones, or even any idea of the cost of living away from home.

This is something of a minor quibble and Bart's has many assets. The social life in College Hall, during the working week and at weekends, is very good and revolves (we think) almost entirely around the sports clubs, through which most of one's initial acquaintances are made. Indeed we wonder how those not keen on playing games meet new people—perhaps over the bodies in the Anatomy Department?

In conclusion it must be said that we are having a good time here, enjoying the social life and finding the work interesting and not over-strenuous. Let us hope it continues that way.

Yours sincerely,

IAN BARRISON,
ALLAN HOUSE,
DICK ABBOTT and
IAN WELLER.

is the students' union necessary?

This question should not need asking in any college, but sadly it is necessary here at Bart's. The answer is an unequivocal YES! The students' union in any college, and particularly at Bart's, represents the only means of communication the student body has with those

who run the college, short of anarchy, which should not be tolerated. Sadly, the students' union has become an irrelevance in the college, ignored by the students generally, and in turn ignoring them.

Turning to the students' union handbook, we read "The Students' Union is a body . . . to provide for the representation of the concerted opinion of the students . . . on matters relating to the Union", and that its representatives, though not its executive are "students elected by the students of their own year." In reality, the comment of third year pre-clinical students, when asked about the Union ranged from "Is there one?" to "It's a clique". Thirty-one out of forty students polled had no idea who their students' union representatives were, and of the other nine, none knew for sure who both were. The general opinion is that the Students' Union is a rather vague, clandestine, archaic and self-perpetuating dynasty, rarely heard of and never seen. The executive officers are completely unknown. The attitude generally is one of apathy, on both sides unfortunately.

It should be pointed out here that the Union will take no interest in the students and their wishes unless the students themselves first take an interest in the Union. This lack of interest on the part of the students is principally the fault of the Union. It makes no real attempt to communicate and to inform, which is the main task of any elected body. Notifications of elections and meetings are in small type on gloomy notice boards, and real interest and enthusiasm is positively discouraged by the deadening slowness of response.

If the Students' Union is to become effective again, as it must in these days of rapid change, it must come out of its shell. Notices of nomination and election should be boldly and numerously displayed. Meetings should be publicised, the executive should attempt to make itself known to all the students. Itemised accounts should be presented to the "shareholders" (namely the students), annually, and voted on.

We believe that the Students' Union, as the only officially recognised representative of student opinion, should be strengthened and encouraged. It should itself become less complacent and publicity shy, it must actively seek and encourage support and it must inform loudly and often.

T. Hancock,
B. Cotton,
M. Vandenburg,
J. Kolendo.

SPORTS NEWS

ATHLETICS CLUB University of London Winter League Bart's v. L.S.E.

The first match of the Winter League was held on Saturday, October 26th; a fine crisp morning. The opponents for this match were the London School of Economics, but they must have been too busy organising the "October Revolution" as they failed to send a team. Thus Bart's won the match by a walkover. However, we still had six other teams to compete against and some noteworthy performances were achieved.

Ron Knight showed his talents in the 200 metres sprint and the long jump. Paul Taylor, a fresher, performed well coming second in the 400 metres and third in the 800 metres. Chris Lunn, another fresher, looks like becoming a worthy member of the athletics team, competing well in the 200 metres, long jump, and triple jump.

Paul Bebbington once again completely demoralised the opposition in the discus, winning by over 8 feet.

If there are any more freshers who want to compete in the Winter League they will be welcome; they should give their names to Robin Barrett or myself.

Results

100 metres: Breeson, 3rd; Furness, 4th.
200 metres: 1st string, R. Knight, 2nd; 2nd string, C. Lunn, 3rd.
400 metres: P. Taylor, 2nd.
800 metres: R. Moody, 2nd; P. Taylor, 3rd.
Long jump: R. Knight, 5th; C. Lunn, 6th.
Triple jump: C. Lunn.
Discus: P. Bebbington, 1st.
Shot: P. Bebbington, 2nd.
Javelin: P. Bebbington, 2nd.

Dates for Diaries

University of London Winter League Matches
Saturday, November 9th.
" December 7th.
" January 11th.
" January 25th.
" February 8th.

Training Times

Mondays—7.30 p.m. Weight training—U.L. Union, Malet Street.
Tuesdays—Crystal Palace U.L. Training squad.
Wednesdays—2.30 p.m. Sprints around Charterhouse.
Thursdays—7.00 p.m. Crystal Palace.
All athletes are welcome to all of the above sessions.

A. J. Breeson

SOCCER CLUB REPORT

The start of the season was delayed for two reasons. Firstly we have to rely heavily on our preclinical players and so cannot begin playing until other hospital sides have played several matches. Secondly the Kent floods had made Chislehurst unplayable for our first matches. Thus our intended start on October 5th was delayed by rain until Wednesday 9th, when we were able to play by switching the game to the London Hospital ground, not so blighted by rain.

Wednesday, October 5th

Fielding an untried, unfit and weakened side, Bart's were heavily defeated by a strong London side which had already played several matches.

It was only during a 15-minute spell in the second half that Bart's showed some cohesion. Murphy worked hard in midfield with little support.

Friday, October 11th

A combined Bart's and Guy's side played the U.H. President's XI at Crystal Palace. These friendly matches arranged by the evergreen Dr. Hugh Symonds are always enjoyable and this proved no exception.

With the President's XI playing well and the combined side not settling for 20 minutes, it was not surprising when a perfect cross from Dr. Symonds landed squarely on the head of an attacker to make the score 1-0. As the game progressed the combined side began to play the ball on the ground from man to man and this soon brought reward. A fine move down the left involving an all Bart's trio of Barrison, Knight and Murphy led to the goal of the match. The ball was put through to Murphy on the edge of the box and, controlling it well, he picked his spot and blasted the ball into the top right corner of the net. An acrobatic leap across goal by the 'keeper proved in vain as the ball flashed in. From the right wing Skanderowicz saw the goalkeeper slightly out of his goal and shooting from 30 yards planted the ball firmly under the left side of the crossbar to make the score 1-2 to the combined side.

It was a cross from Barrison to Skanderowicz that led to a further goal, the winger's firm cross being deflected into the net by a defender. The Guy's centre-forward scored the two other goals. One of these came from another move along the left flank culminating in a controlled ground pass by Barrison leaving the centre-forward with a simple task.

Refreshing social activities after the match rounded off a most enjoyable evening and our great thanks go to Dr. Hugh Symonds for making it possible.

The game on Saturday, 12th October, against Bickley Park F.C., a team playing near Chislehurst, was rained off due to an uninterrupted downpour on the eve of the match.

Wednesday, October 16th

Playing against St. George's, Bart's looked the better side in the early stages and it was against the run of play when, due to a defensive lapse, George's scored.

Still playing controlled football, Bart's were unlucky not to score when two attempts at goal were scrambled away. Good Bart's play was

still unable to bring results and at half-time we were 3-0 down. During the second half St. George's opened up their play well to score more goals. The only really fit men in the side were Peter Bowen-Roberts and Ian Weller who both had good games. Apart from our general unfitness we were also under some handicap for Dave Leech had a heavy cold and Ian Barrison apart from suffering the after effects of a tetanus jab became the target for some heavy tackling, probably due to his regular appearances in the opponents' penalty area, and was invalidated out to the wing during the last 20 minutes of the game. Corners and free-kicks appeared to be our most dangerous weapon. One corner, taken by Skanderowicz, found the head of Barrison who was unlucky to see his effort narrowly miss the far post with the goalkeeper beaten.

Ian Weller receiving a short corner on the right beat his man and shot inside the post to score Bart's only goal and make the final score 8-1.

Saturday, October 19th V. Medical Sickness Society, Won 7-0

Bart's were soon able to capitalise on their strength against a weakened Medical Sickness Society team. The "dramatic" switch to the forward line of Ian Barrison brought 4 goals to his credit. A corner, taken by Skanderowicz on the right, was headed in for his first and his second was added soon after in an identical way from a free-kick from the right. From a corner it was Mike Murphy who blasted the ball into the net to make the score 3-0 and, in a goal mouth scramble, Ian Barrison who forced the ball home after an acutely angled shot from Skanderowicz.

Andy Skanderowicz scored the next two goals, the first by gliding in a left wing cross, and the second by a shot from some distance. The seventh and final goal was scored spectacularly, if somewhat luckily, by Barrison who hitting the ball on the inside of his left foot curled it firmly under the right of the crossbar from 18 yards.

Wednesday, October 23rd V. School of Slavonic and East European Studies, Won 3-0

Despite Knight yet again winning the toss, Bart's reached half time with the score 0-0 due to lack of punch in the forward line with the defence playing well. The safe goal keeping of Chris Sutton, making his first appearance

this season, inspired the team and it was after 5 minutes from the turn that Bart's scored their first goal. Murphy pulled the ball back from the byeline for Barrison to slide it under the diving 'keeper. Barrison scored a simple goal to make it 2-0 and later his shot was pushed out to the feet of Skanderowicz who made no mistake. Ian Weller, playing at right-half had another good game, bringing the ball through to the attack and still having time to get back into defence.

The good sportsmanship of the other side made this our most enjoyable fixture so far and we hope to arrange a return fixture for next term.

Saturday, October 26th
V. Royal College of Music (U.L. Cup),
Won 6-3

After winning the toss Bart's elected to play up the slope in the first half. With little for the defence to do it was a measure of our superiority that we were 5-0 up at half time. A pass from Murphy was turned in by Barrison to open our account and the same player took a through ball round the full back to score the second. Skanderowicz shot from 20 yards for number three and a series of interpasses between Leech and Murphy led to the best goal of the match scored by Murphy. The fifth goal was scored by Dave Leech who pushed in a bouncing ball.

With the incentive lost defensive lapses in the second half allowed in three goals, Knight's goal kick to the foot of an oncoming forward being the most blatant. Steve Farrow making a welcome return from retirement added strength and experience to the team and Tony Wall seems to have established himself in defence with some fine tacking and good distribution. Barrison scored a late goal to make the final score 6-3 to Bart's

Condolences to Andy Weir who fractured his knee-cap at the end of the vacation, we hope he will be fit to play soon.

Ron Knight

Mitch Dalton has been playing recently at left back and his fine distribution is making him one of the seven preclinicals who are regular members of the side.

THE BOAT CLUB 1968

Officers :

Captain Dai Davies
Hon. Secretary Peter Featherstone
Social Secretary Barry Grimaldi
Treasurer Tim O'Carroll
Preclinical Rep. Dick Thomas

The Boat Club, "under new management", starts its 125th year with the largest ever number of active oarsmen since 1843.

The opening meeting was held in "The Doctors", where several major decisions were taken; by no means the least of which was the unanimous vote of confidence in a Christmas Party to be held later this year (1968).

Weight training is now in full swing on Tuesday and Thursday evenings; and already the crews are really quite fit and strong for this stage of the season. Rowing at the moment is restricted to Wednesday and Saturday afternoons.

Junior VIII's 'A' and 'B'

Here again there is considerable strength with some of the freshers looking very useful. They too have been training in the gym and it is very much hoped that they will stay together for the whole season; with adequate coaching they could do very well, particularly under the inspired leadership of Joe Winner.

Crews here are:

Junior VIII 'A'

M. Hartford-Cross	J. Johnson
P. Smyth	P. Houlton
P. Walker	R. Henderson
R. Williams	J. Winner

Junior VIII 'B'

J. Blake James	O. Bastard
D. Patrick	R. Hayward
G. Lodge	S. Whiting
D. Stringer	A. Fletcher
M. Butteriss	H. Jones

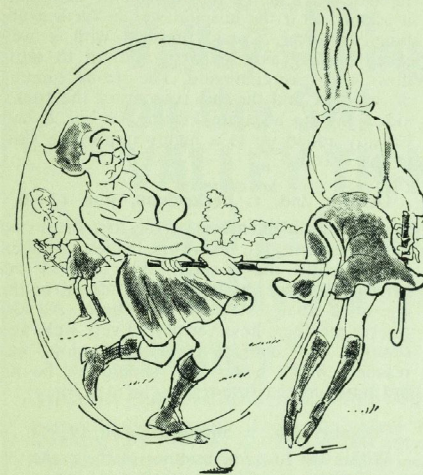
I would like to thank Roger Smith from Edinburgh for his useful coaching.

Novices

A surprising amount of freshers have decided to row this year and we are hoping to arrange a system whereby they can join in the London University training scheme. Barry Grimaldi has made great strides with them and they look well placed to win their event in the regattas this term. They are:

D. Wainstead	P. Acres
R. Gabb	C. Dave
N. Thatcher	B. Glonester
R. Abott	C. King

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Great Potential

With the arrival of another Youth International, Dick Fowler, from U.C.S., Tom Dehn from Granwell, Simon Wainstead from Bryanstone, as well as David Bournell from the Leys, Graham Harris from Cheltenham College, and C. Trower from Eastbourne, there is ample reinforcement for remaining members, who are:

Dai Davis
James Gilchrist
Dick Harold
N. J. C. Snell.

Peter Featherstone
Tim O'Carroll
Dick Thomas

We are fortunate that Barry Grimaldi (Emmanuel and G.B.) and Ken Webb from the University are also rowing for us this year.

Obviously there is considerable potential here and we hope for a really successful season.

Coming Events

The following competitions will be raced this term and it is hoped that many of you will come and support. It is generally not realised what a tremendous difference this can make.

Events

November 16th, 1968—May and Baker Cup (v. Guy's 1st VIII).
November 16th, 1968—World Medicine Shield (v. Guy's 2nd VIII).
November 23rd, 1968—United Hospitals Regatta.
November 30th, 1968—Winter VIIIs (Inter-London University) Regatta.
November 30th, 1968—125th Boat Club Dinner; this year it takes place at the Hall of Residence, tickets available from Dai Davies, P. Featherstone or B. Grimaldi.
Colours were awarded to Dai Davies, T. O'Carroll, R. Thomas.
Success would be sweet in this our Anniversary Year.

Peter Featherstone

RUGBY REPORT

September 28th, v. The Trojans, won 35—9

When the Trojans winger plunged over the line for a try in the first minute of the game, it seemed as if the hospital was in for a drubbing. However, Cassidy replied with a well taken penalty and we were allowed to settle down and take command. The strong running of the pack and the fast running of the backs, aided by the accurate kicking of our flyhalf Cassidy added up to a highly impressive start to the season.

October 2nd, v. Beckenham, won 12—6

With several members of the first fifteen on duty elsewhere, the teamwork tended to suffer. Consequently the hospital side allowed the game to become rather scrappy instead of the one-sided affair it could have been. All the reserve members however played very well, and towards the end a certain cohesion was reached, which bodes well should we be hit by injury in the future.

October 5th, v. Southend, won 19—11

Within the first few minutes of the game the scrumhalf Grafton had wrenched his knee and was playing on the wing, where he stayed for three minutes and one beautiful crosskick which resulted in a try under the posts. When he left a certain amount of reorganisation was necessary with Mason, the no. 8, finding himself on the wing and as it turned out later, with a fractured skull. Considering these handicaps, the team did very well to run up as many points as they did. All praise for this must fall on the shoulders of McIntyre who drove everyone with such determination and who was always there when everything broke down.

October 9th, v. Westcombe Park

Match abandoned due to bad light!

October 12th, v. Old Blues, won 9—3

Here the team came up against one of the problems of the new law (that of getting out of one's own half when playing into a heavy wind with a greasy ball). And as the score might imply we never really solved it. Therefore in the second half we were pegged down by an inferior side, although we tried most moves open to us, from running the ball to high kicks and grubber kicks. In a final analysis however one is left with a feeling that we did not really utilise the rush with the ball at our feet as much as we might have done.

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W13H

October 16th, v. LX Club, lost 6—8

For the first time for several seasons we could not claim that we were only putting out a Wednesday fifteen against the university boys. Hence it was even more sad that we lost when in all fairness we deserved to win. We were more pressing and more inventive than the Cambridge side, but we never managed to prevent a rather disorganised team from capitalising on a scrappy game. This was also the first time we felt the full force of the new law and the score of a goal and a penalty to a try and a penalty meant that two very exhausted teams crawled into the changing rooms.

October 19th, v. R.M.A. Sandhurst, won 12—8

This was the second time in a week that we left the field exhausted. The difference this time however was that our opposition was very fit and not at all exhausted. Full praise must therefore be given to the backs for their defensive work and also for an excellent try in the closing stages of the game when Hopkins, the winger, came into the line, broke through and put across a perfect chip kick for Griffiths, the other winger, to touch down and score. It was this which allowed us to stay on top when we were definitely flagging.

**Report on match versus Sidcup
Bart's 12—Sidcup 16**

This was a hard game, which in some ways we were unlucky to lose. We held Sidcup up front and were always pressing throughout the game. However, we suffered from a lack of ability to penetrate the tight Sidcup defence. They scored two break-away tries which should not have been allowed and two penalties to our four penalty goals, which were magnificently kicked by a newcomer to the side—May, the centre.

Record so far: played 7; won 5; draw 0; lost 2. Points for, 105. Points against, 64.

**ST. BARTHOLOMEW'S HOSPITAL
GOLF CLUB****October 2nd**

St. B.H.G.C. v. University College Hospital at Chislehurst

Two four ball better ball matches were played and one singles. Stuart Davison and Chris Booth had a better ball score of par and won comfortably. Dick Page played the singles match and crushed his opponent 8 and 6. Results:

- | | |
|-----------------------------|-------------------|
| 1. Davison and Booth | won 5/4 |
| 2. Rutherford and Griffiths | lost 3/2, won 2—1 |
| 3. Page | won 8/6 |

October 9th

University Trials, at Sandy Lodge

On a soggy course only Howard Rutherford played well and his 79—8=71 was a good score in difficult conditions. Stuart Davison had a gross 35 for the first 9 holes and was holing fantastic puts. Unfortunately he had a poor second half. The rest of us suffered varying degrees of misfortune. Davison, Rutherford, and Booth played for the University 2nd the following Saturday.

Bart's G. C. Tour—October 18th

v. Colchester G.C.

Once again in foul weather four close four ball better ball matches were played. Stuart Davison and Chris Booth made their opponents work hard for a win and it was just as well that John Thorogood, the Essex Amateur Champion scored a 71 for his side. The second pair of Ken Ross and Howard Rutherford lost a fluctuating game 2 down. Our 3rd pair lost 2 and 1, but Bill Tingey and Richard Jukes saved a point by a good win on the last green.

Results:	Davison and Booth	lost 3/1
	Ross and Rutherford	lost 3 down
	Maton and Firmin	lost 2/1
	Tingey and Jukes	won 1 up

Bart's 1, Colchester 3.

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October 19th

v. Ipswich G.C.

The weather was perfect for golf and the team played very well round this difficult heathland course. In the morning four ball better ball matches. Chris Booth and Ken Ross won 2/1 with individual scores of 76 and 73 respectively. Howard Rutherford and Richard Firmin, also shooting in the middle seventies, went down by 1 hole after a very good start by Richard. The third pair of Stuart Davison and Paul Maton won 6/5, each playing a very good half in his turn. Bill Tingey and Richard Jukes lost 1 down, Richard having scored 37 over the first 9.

In the afternoon foursomes Booth and Ross won 3/2 and Rutherford and Firmin reversed their morning loss. Maton and Davison (who played the last 9 in his sleep!) lost 5/4, while Tingey and Jukes again played well to win 3/2.

We were superbly entertained—as at Colchester—and have been invited to continue the fixture next year.

Results	a.m.
Ross and Booth	won 2/1
Rutherford and Firmin	lost 1 down
Davison and Maton	won 6/5
Tingey and Jukes	lost 1 down

Results	p.m.
Ross and Booth	won 3/2
Rutherford and Firmin	won 1 up
Davison and Maton	lost 5/4
Tingey and Jukes	won 3/2

Bart's 5, Ipswich 3.

October 23rd

v. London School of Economics
at New Malden

Ross and Booth in the 1st pair finished all square after a very tight game. Richard Jukes was our only winner by 5/4, and one L.S.E. member only arrived to play 10 holes.

Results:	Booth and Ross	all square
	Tingey and Page	W.O.
	Jukes	won 5/4
	Firmin	lost 7/6
	Hamilton	lost 2 down

Result: 2½—2½.

SAILING CLUB

At the A.G.M. of the Sailing Club held on Tuesday, October 22nd the following committee was elected:

Hon. Sec.: Roger Chapman (Room 501 College Hall).

Hon. Brent Sec.: Brendan O'Farrell.

Clinical Rep.: Mark Rowntree.

Pre-clinical Rep.: Bruce Noble.

Any of these people will be pleased to answer queries regarding the Sailing Club, for example regarding the use and availability of boats, how to get to the Welsh Harp and the times of races.

Fixtures

We have the following fixtures arranged for this term so far:

University of London League Team Racing Series.

Wednesday, November 13th.

Wednesday, November 20th.

Wednesday, November 27th.

Wednesday, January 15th.

Saturday, November 9th: 2 teams against St. Thomas' Hospital.

Saturday, December 7th: 2 teams against St. Mary's Hospital.

Wednesday, December 11th: 1 team against the Royal Veterinary College.

On Wednesday, October 23rd a two boat team was sent to the Welsh Harp to sail against Westminster Hospital in the U.L. points league. The team comprised:

B. D. O'Farrell, Miss J. Dinwiddie, B. Noble, Miss P. Benison.

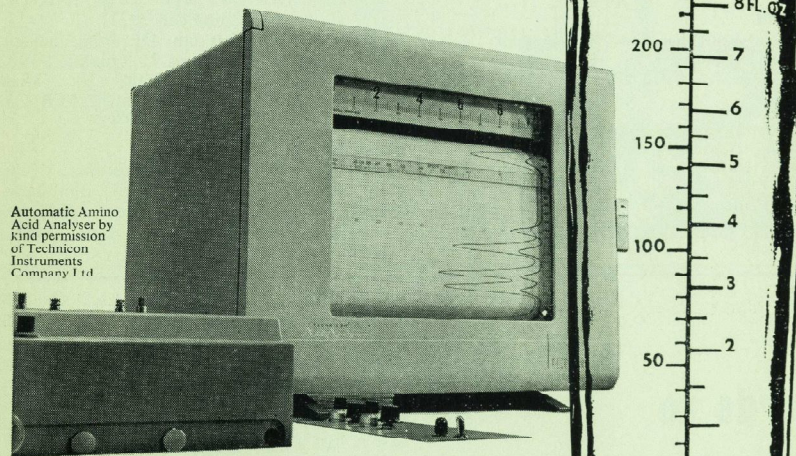
Unfortunately the Westminster team failed to materialise and so we received maximum points for the event. However, the two boats staged a private race which Bruce Noble won after Brendan O'Farrell found it necessary to get out and push when he came across a surprise mud-bank.

A small party of freshers was taken to the Harp on October 16th and everyone had a sail in one of the College boats in a good fresh breeze. However, many people who indicated that they were interested in sailing have not yet visited the Harp. I would be pleased if they would contact me and I will arrange for them to be shown the facilities.

R. G. Chapman.

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ANNOUNCEMENTS

CHONG—To Junie, wife of J. Kenneth Chong, F.R.C.S., a daughter, Clare Vanessa, on October 26, 1968, at Temple Hospital, Philadelphia, Pennsylvania, U.S.A.

Change of Address

As from November 12th, 1968 Dr. and Mrs. D. J. H. Rogers from 128 Parkway, Welwyn Garden City, Herts. to 17 Valley Road, Welwyn Garden City, Herts. Telephone: Welwyn Garden 29292.

Deaths

BATEMAN—On August 26th, Dr. Charles Harvey Bateman, M.B.E., M.R.C.S., L.R.C.P., aged 62. Qualified 1932.

HARDWICK—On September 23rd, Dr. Sydney Walpole Hardwick, B.Sc., M.D., F.R.C.P., D.P.M., aged 65. Qualified 1927.

JACKSON—On October 6th, Dr. John Jackson, M.R.C.S., L.R.C.P., aged 71. Qualified 1922.

STATHAM—On October 11th, Dr. Hugh Statham, M.B.Camb., B.A., B.Ch., M.R.C.S., L.R.C.P., aged 92. Qualified 1902.

Appointment

NORTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD—Dr. J. S. Malpas, D. phil.Oxon., M.B.Lond., M.R.C.P. has been appointed consultant physician to the East London Hospital Group.

Engagement

WALKER—SYMINGTON—The engagement is announced between Dr. Peter Heywood Walker and Miss Elizabeth Rose Symington.

Births

LLOYD-WILLIAMS—On September 28th, at Bart's, to Adrienne (née Calvert) and Dr. John Lloyd-Williams, a son, brother for Richard.

PEARCE—On October 10th, at Bart's, to Mary (née Bogle) and Dr. John Pearce, a daughter (Clare Judith).

awards to nurses

October 30th: the presentation of Certificates and Awards to Nurses. Sir Michael Perrin (Treasurer of the Hospital) began the occasion. He insisted that change was inevitable but should hold to old values. Miss Jones (Matron) gave a report on nursing affairs. She said that fewer nurses had completed training this year than previously, due to more leaving to get

married. She felt this was a trend which would continue. Miss Hector (Principal Tutor) told tales of experiments with closed circuit television teaching. The money was derived from the Worshipful Company of Clothworkers. When the Master of that institution had asked her how the money was going, she had replied that it had all gone.

The Dowager Marchioness of Reading (Chairman and Founder of the Women's Royal Voluntary Service) rose as guest speaker. She claimed that traditions were a source of strength, but that they must adapt as times changed. Above all, she stressed the importance of a sense of humour. Her "operation story" told of how prior to her operation she had made her will and had a perm—"What any sensible woman would have done." She hoped that all the nurses present would soon be married, and that Matron could not hear her saying this.

Prize-giving followed. Mr. Morgan (Master of the Worshipful Company of Clothworkers) presented the medals and first year awards. The Gold Medal was won by Miss Sally Ann Derry.

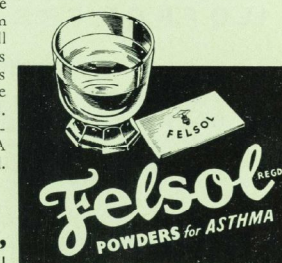
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OBITUARY

Sir Charles Lovatt Evans

D.Sc., LL.D F.R.C.P. F.R.S.

(1884-1968)



Sir Charles Lovatt Evans died suddenly at his home at Winterslow, near Salisbury, on 29th August at the age of 84. He was Emeritus Professor of Physiology in the University of London, and Professor Physiology at St. Bartholomew's Hospital Medical College from 1922 to 1926.

university

Charles Arthur Lovatt Evans was born on 8th July, 1884. While studying at the University of Birmingham he obtained a B.Sc. degree in Physiology in the University of London as an external candidate in 1910. Shortly afterwards he was offered the post of Sharpey Scholar in the Department of Physiology of University College London by Professor E. H. Starling, and started work in that department in 1911. This was the beginning of a long career in physiology and during the next five years he was actively engaged in the investigation of metabolic processes of the heart and lungs and also in a study of renal function in the heart-lung-kidney preparation which he carried out conjointly with F. A. Bainbridge, who was Professor of Physiology at Bart's from 1915-1922. During his tenure of the post of Sharpey Scholar, he also found time to study for a medical degree at University College Hospital, and he qualified in 1916. From 1916 to 1918 he served in the R.A.M.C. and was seconded to work in the anti-gas department at the Royal Army Medical College at Millbank. Here, again under E. H. Starling, he studied the effects of "mustard gas".

demobilisation

On demobilisation in 1918, he accepted the Chair of Experimental Physiology and Pharmacology at the University of Leeds, and the following year joined the staff of the National Institute for Medical Research. The subjects of his research included the regulation of the reaction of the blood and the effects of changes in carbon dioxide content of the blood on the circulation. This latter study he made with Dr. H. H. Dale (later Sir Henry; see *St. Bart's Hosp. J.* **69**, 352, 1965 and **72**, 375, 1968).

When he became Professor of Physiology at Bart's in 1922, he had the task of organising the new laboratories in 6 Giltspur Street, the department having been moved from the building behind the West Wing on the Hospital site. While at Bart's he published work concerned with the mode of vasodilator nerves, and on conditions governing the contraction and tonus of smooth muscle. He also published the first edition of "*Recent Advances in Physiology*" which was an immediate success. He was responsible for three more revised editions of this book which appeared within the next five years.

university

In 1926, Lovatt Evans succeeded Professor A. V. Hill as Jodrell Professor of Physiology at University College. Almost immediately he began work on the 5th Edition of "*Principles of Human Physiology*", the four previous editions having been written by E. H. Starling. This 5th edition appeared in 1930, and he continued the heavy task of keeping this textbook up-to-date for a period of sixteen years during which time seven further editions were published. When he took over "Starling", he handed the responsibility for *Recent Advances in Physiology* to Professor W. H. Newton.

war

During the Second World War, he was closely associated with work being carried out at the Chemical Defence Experimental Establishment at Porton Down, Wiltshire, and returned to University College in 1945. Although retired from the Jodrell Chair in 1949, he was very reluctant to give up research work. He was given facilities at Porton Down where he became a member of the staff, and was consultant to the Ministry of Supply. In 1959, he was made consultant to the War Office. At Porton he became interested in the control of sweating

by adrenaline in the horse and he provided a physiological explanation for equine tropical anhidrosis (a 'dry-coat' condition) which occurs in a proportion of imported thoroughbreds. The last paper, entitled "The toxicity of hydrogen sulphide and other sulphides," was published in 1967. Thus for about eighteen years after he had 'retired' he was actively engaged in research work.

honours

The honours bestowed on him were numerous. He was elected a member of the Physiological Society in 1911, and in 1913 became a D.Sc. in the University of London. In 1915, he was elected Fellow of the Royal Society, Fellow of the Royal College of Physicians in 1939, member of the Medical Research Council from 1947 to 1950, chairman of the Military Personnel Research Committee from 1948 to 1953, and chairman of Council of the Royal Veterinary College from 1949-1953. He was a Fellow of University College London and of the Royal Veterinary College, London. He received the LL.D. from the University of Birmingham in 1934 and from the University of London in 1957. He was knighted in 1951.

serene

With the death of Sir Charles Lovatt Evans, the younger generation of physiologists have lost one of the few remaining links with the Bayliss and Sharling era of physiology, of which he always spoke so reverently. Those whose privilege it has been to serve on his staff at University College always found him extremely friendly, kind-hearted and helpful, and together with a delightful sense of humour, one was always made to feel very much at ease. Always serene, one never saw him ruffled or lose his temper.

It was perhaps unfortunate that in the years immediately after the Second World War committee work took up a great deal of his time. But in his unselfish way, he felt someone had to do this work and that it should be him, so as to allow more junior members of his department correspondingly more time for their own research.

In the laboratory, he was always a great stimulus and took the keenest interest in what was being achieved. His own contributions

covered a wide field of physiology and it was natural therefore that people should turn to him for advice, suggestions and criticisms; these were always readily given and were invaluable.

He always commanded the deepest respect and affection of his colleagues, and his sudden passing is a great loss to his many friends. He is survived by his two daughters to whom we extend our sympathy.

M. de B. D.

Photograph kindly supplied by Dr. H. E. Lewis.

OBITUARY

Miss Frances Hodges

Miss Frances Hodges died aged 79, in September this year at Maldon in Essex where she had lived during her retirement. In the 1914-18 war she drove an ambulance and nursed in the R.A.F. She entered Barts in October 1921 and received her Nursing Certificate in October 1924. After 2 years as Night Sister and one as Sister Radcliffe (in 1928-9 a female septic ward on the top of the West Wing) she became Sister in Charge of the Eye Ward in 1929, at a time when this ward was moved from what is now Kenton Ward to the top of the East Wing.

isolation

This lofty isolation of the Eye Ward, rarely viewed by administrators, was agreeable for Miss Hodges' individual and unconventional ideas about hospital nursing. She had a genuinely warm and personal interest in her patients not only during their stay in hospital but in attending to their care when they were discharged, some with poor sight, left to struggle with this adversity in poverty and loneliness.

Her unconventional methods allowed her nurses to sit when possible at their various tasks when "standing only" was the order of the day in the general medical and surgical wards. The nurses wrote letters for and read to the patients whose eyes were occluded by dressings. The hospital rule of a bath immediately upon admission was considerably waived in the case of an old coal heaver and an agricultural labourer from Essex who had never had baths in their lives and one of whom expressed horror in his exclamation "Wot, water oop to yer neck". They remained throughout their stay in hospital encased in the thick felt-like underwear into which they had been sewn some months previously at the onset of autumn, and in which they would remain till the following spring. The exposed parts of their faces, hands and feet were gently washed and the old men were content.

memory

Those of us who worked in this happy retreat, reached by a dangerous slippery spiral wooden staircase, will have a lasting memory of Miss Hodges as a tall, thin pale woman, standing for hours beside her sewing machine mending ward linen and making garments for patients in need. The need of help, sympathy, encouragement and love was the purpose of her way of life. She was a devout Anglo-Catholic and a great admirer of the life and teaching of St. Francis of Assisi. This inspired her admirable work as a Sister and a Nurse who had "a heart which never hardened; a temper which never tired; and a hand which never hurt". (Quoted from Charles Dickens.)

M.A.

H.B.S.

ST. BARTHOLOMEW'S HOSPITAL JOURNAL

CLINICAL AND RESEARCH SUPPLEMENT

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The Evolution of Regular Dialysis Treatment

by J. Campbell Mackenzie, B.A., M.B., B.Chir. M.R.C.P.E.

Senior Registrar, St. Bartholomew's Hospital

It is 150 years since Dr. John Blackall of Bart's and Dr. Richard Bright of Guy's published the results of their masterly observations on patients with diseased kidneys. As the pathogenesis of renal disease became more completely understood, Bright's disease was shown to embrace a heterogeneous sample of mixed acute, subacute and chronic renal pathology. Rapid progress was also made in the assessment of renal function, largely from the painstakingly accurate studies of Homer Smith (1943). It is important to emphasise that therapeutics did not advance at the same rate, in fact, just a little over 25 years ago the physician faced with the problems of acute or chronic uraemia could do little to alter a uniformly bad prognosis.

Although early therapy had been empirical, it soon became possible to reduce the morbidity and mortality of renal failure by careful regulation of fluid and electrolytes, restriction of dietary protein, correction of surgical abnormalities and by a more vigorous approach to

the elimination of any urinary tract infection. It was natural that the more dramatic renal shut-down of acute renal failure should be the first problem to attract the attention of workers in this field. The Bull's regime was introduced and comprised a high carbohydrate intake with no added protein, sodium or potassium and restriction of daily fluid intake to 400 ml. plus the urinary output of the previous 24 hours. Although the patient's own peritoneum had been used effectively as a living dialysing membrane as early as 1923 (Putnam, 1923), peritoneal dialysis was not exploited for 30 years because of the technical problems and the dangers of peritonitis in the preantibiotic era. Today, some of these problems have been solved and peritoneal dialysis has a valuable place in the treatment of acute renal failure. It has also been used regularly in chronic renal failure with some success, but the discomfort to the patient and difficulties of repeated cannulation of the peritoneal space, infection and

excessive protein loss in the dialysing fluid make this procedure somewhat unsatisfactory on a long-term basis.

Early attempts to design artificial kidneys were thwarted by the lack of a satisfactory anti-coagulant to prevent clotting in the extra-corporeal circulation. The crucial advance came quite suddenly in 1944 when Dr. Wilhelm Kolff, in Holland, developed an efficient dialyser for the treatment of acute renal failure. The fundamental principle of dialysis is the use of a semi-permeable membrane of cellophane or cuprophane which allows exchange of electrolytes and metabolites by a process of simple diffusion from a high concentration in the patient's blood to a low concentration in the dialysing solution. Excess fluid is removed from the patient by applying a pressure gradient between the blood and dialysate compartments of the dialyser, that is, by ultrafiltration. (Fig. 1).

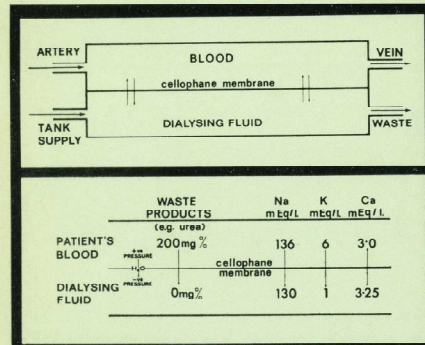


Fig. 1

The next logical step was to extend this form of treatment, with certain modifications, to the much larger problem of chronic, pre-terminal or end-stage renal failure. Successful application of haemodialysis to the treatment of chronic renal failure was accomplished in Seattle in 1960 where the original three patients are still alive and well seven years later. (Scribner et al., 1960). Progress, however, was severely limited until a permanent indwelling arteriovenous cannula system of teflon-silastic was developed which allowed repeated access to the blood stream and had a sufficiently long life to make repetitive haemodialysis more feasible (Quinton et al., 1962) (Fig. 2). Regular dialysis treatment has now become internationally accepted and the Ministry of Health has planned 20 new, 10-bedded dialysis centres, each capable of

giving definitive treatment to some 600 patients, will act as a base for home dialysis and support renal homotransplantation which, with the advances in tissue typing, tissue storage, immunosuppression and anti-lymphocyte serum will, undoubtedly, become the treatment of choice in patients with chronic renal failure who have no gross abnormality of the lower urinary tract. dialysing 30 patients. These units, as well as

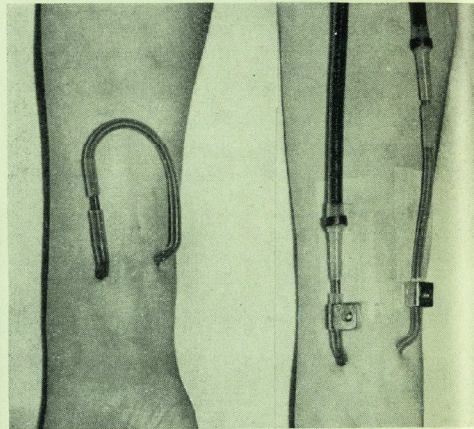


Fig. 2

Here at St. Bartholomew's a pilot unit has been operating since the end of 1966 and treats 6 patients. This has produced collective data for 37 patient months. Although our experience is relatively modest, it has allowed certain technical developments and provided training of staff prior to relocation in the new Ministry unit at St. Leonard's Hospital. The concept of haemodialysis is simple but the practical application involves the physician in not only clinical, but financial, social, ethical and technical problems, some of which will be considered.

1. Statistics

There are 7,500 deaths annually from renal disease in England and Wales, of which perhaps 1,500—2,000 could benefit from regular dialysis treatment (R.D.T.) if facilities were available. The cost of R.D.T. for 2,000 patients would be £3,500,000 (about £1,700 per patient) in the first year (Curtis, 1967) and each year the cost would increase proportionately. It is estimated that, at the present time there are 200 patients being

dialysed in this country, 20 per cent. of whom are in their homes. A world wide survey shows that about 1,000 patients are being dialysed in 81 centres with an 80 per cent. 1 year survival rate (Drukker, 1967). This is to be compared with the 50 per cent. 1 year survival following renal homotransplantation. Staffing requirements tend to be high in centre dialysis treatment but these can be offset by expansion into the home dialysis programme.

Selection of Patients

This is a subject which is difficult to view dispassionately. The problem is a recurring one as so many new patients with chronic renal failure present each year and a large discrepancy will remain between the number of patients and the number of places available. Some form of selection is therefore mandatory, and humanitarian principles are applied in an attempt to select the most eligible candidates. The criteria for selection, despite minor changes from time to time, remain basically:

- 1 Disabling or near terminal renal failure (GFR 5ml./min.) in a patient aged between 18 and 50 years. Pre-pubertal patients are not usually accepted because of growth failure on R.D.T.
- 2 Absence of other severe disabling diseases such as cerebro-vascular accident, uncontrolled diabetes mellitus or rapidly progressing connective tissue disorders.
- 3 Demonstrated emotional stability with full co-operation in the investigative, therapeutic and rehabilitation aspects of the programme.
- 4 Patient should live within reasonable distance of the dialysis centre.

There is no ideal method of selection, but it is a task which is best performed by a medical or medical-lay committee.

Equipment

Most centres have obtained experience with either the modified Kolff twin-coil dialyser or the Kiil twin-layer dialyser.

The basic disadvantages of the coil principle are the large volume of donor blood required for priming the system and the need for a pump to maintain blood flow against a high resistance, together with the large residuum (20 ml.) of blood retained in the dialyser at the end of dialysis which is not recoverable to the patient. These factors all contribute to higher maintenance transfusion requirements. Some of these disadvantages have been overcome by using mini-coils or chron-a-coils, but in general the modified Kiil twin-layer dialyser has gained

favour in most centres and home programmes.

Dialysate Supply

A continuous central supply of fresh dialysate is required when using the Kiil Dialysers, unlike the Kolff dialyser which has an incorporated dialysate tank. The dialysate is made up from commercially available concentrate and has the following composition when diluted 40 times.

Na Cl	— 130	mEq/L
K Cl	— 1.4	mEq/L
Mg Cl	— 2	mEq/L
Ca Cl	— 6.5	mg/100ml
Dextrose	— 200	mg/100ml

Dilution can be carried out manually in static tanks or by automatic proportional pumping units. Softened water is used to prevent high levels of calcium and magnesium in the final dialysate solution. From the central supply the dialysate is piped to the dialyser at a constant temperature (37° C) and concentration. All components are sterilised with 2% formalin solution as the dilute dialysate provides an ideal growth medium for bacteria. Negative pressure for ultrafiltration is created using a gravity drop or a pump on the dialysate out-flow line from the dialyser.

Heparinisation

Heparin is administered into the arterial blood line, either as a continuous drip using an infusion pump or intermittently every 1-2 hours, and maintains the clotting time in the machine at 45-60 min. as measured by a modified Lee and White method. Heparin requirements vary from 1400-2400 units per hour. Regional heparinisation, in which protamine sulphate is infused into the heparinised blood returning to the patient, should be used if there is any risk of haemorrhage, such as after surgery or if pericarditis is present. Clotting in the dialyser, blood lines or shunt cannulae is rare, but can result in cessation of the dialysis and the loss of the 300mls. of blood in the dialyser.

Monitors

Although the dialysis procedure is initiated, conducted and discontinued by trained nursing personnel, safe R.D.T. using a minimum of staff demands highly sensitive monitors incorporating audio-visual fail-safe alarms. The basic parameters which require to be monitored are dialysate flow-rate, temperature and concentration, the patient's venous pressure and the dialysate compartment negative pressure which regulates ultrafiltration. Blood flow-meters and blood leak detectors are an advantage. The problems of unattended overnight dialysis in the home have been overcome by the use of a

single-bed proportional pumping unit supplying dialysate and also incorporating a monitor (Baillod et al., 1965).

Arterio-Venous Shunt

These are inserted surgically into the non-dominant arm or either leg, 7-10 days before commencing dialysis. The main problems are clotting, infection and haemorrhage. Clotting usually occurs in the venous cannula as a result of hypotension, excessive fibrin formation during and between dialysis, infection or trauma. Declothing is a safe and effective procedure in experienced hands. Recurrent clotting has been effectively controlled by long term anti-coagulant therapy (Wing et al., 1967). There have been reports that streptokinase may have a place in the dissolution of small adherent mural thrombi. "Shuntography" can be used to detect blockages radiologically. Infections around the skin exit sites must be prevented by adhering to strict aseptic techniques when handling the shunt and by the use of antibiotics early if an infection is even suspected.

The average life of a shunt varies considerably. The arterial cannula may survive for 9-24 months and the venous cannula for 3-15 months. Because of short cannula life, some units particularly in Europe use internal arteriovenous fistula created surgically between an artery and a vein (Cimino, 1967). Recurrent venepuncture and the necessity for a blood pump limits the use of this technique particularly in home dialysis. In our experience declothing is performed on average every 60 cannula days with surgical replacement every 24 cannula months.

Diet and Drugs

Despite 24-30 hours dialysis per week, usually in two overnight periods, a strict diet is necessary to keep the patient free from uraemic symptoms. The daily diet comprises 2000-3000 calories, 40-60g. protein, 20-30 mEq. sodium, 50-80 mEq. potassium and restriction of fluid to about 400-600ml./24 hours, depending a little on urinary output. On this regime the patient feels well and puts on real flesh weight and pre-dialysis blood ureas seldom rise above 160 mg./100ml.

If between dialysis there is an excessive weight gain and an excessive rise in the blood pressure, blood urea, serum creatinine or serum potassium it may indicate that the patient is breaking his diet. Resonium A or Zeocarb 225 can be given orally to lower the total body potassium. All patients take multivite tablets to replace the loss of dialysable water soluble vitamins. Aluminium hydroxide is also given

to reduce the absorption of phosphate from the gut as persistently high phosphate levels aggravate renal osteodystrophy and contribute to metastatic calcification. Very occasionally when hypertension is not controlled by dialysis or sodium and fluid restriction anti-hypertensive therapy is necessary.

Clinical Problems of R.D.T.

Pyrexia, chills and rigors do occur on dialysis as a result of bacterial or pyrogen contamination of the dialysate or dialyser. If traces of formalin are left in the circuit severe local pain and spasm develop around the venous cannula and general symptoms of dyspnoea and hypotension may be encountered. Dialysis may have to be suspended while the formalin is cleared from the dialyser.

Hypertension and hypotension

Established hypertension is commonly present at the beginning of R.D.T. but after a few weeks responds to restriction of fluid and sodium, and to the removal of excess and fluid and sodium by dialysis, only a few patients requiring antihypertensive drugs. Bilateral nephrectomy is very rarely performed for refractory hypertension. Transient hypertension does occur during dialysis, probably as a manifestation of the disequilibrium syndrome, which is recognised as a constellation of signs and symptoms including headache, vomiting, coma and convulsions. It occurs more commonly in acute renal failure when the Koff dialyser produces large, rapid clearances of dialysable metabolites and electrolytes from the blood creating a lag period when the level of metabolites in the cerebro-spinal fluid is higher than the blood, causing cerebral oedema.

Hypotension is much commoner and is usually due to excessive ultra-filtration of fluid from the patient during dialysis and may be accompanied by cramps.

Haematological complications

The anaemia of chronic renal failure is complex, secondary to marrow suppression, erythropoietin deficiency, haemolysis, iron deficiency and blood loss. There may be an inability to utilise iron and the serum iron can be normal or high. The anaemia is assessed by regular measurement of the packed cell volume and is not treated unless there are symptoms.

Recently it has been shown that the P.C.V. can run as low as 16-18% without causing ill effects and this has reduced the maintenance transfusion requirements from 1-2 units per month to less than 1 unit per year. Blood is now only given following blood loss or if the P.C.V. drops sufficiently low to produce

symptoms. The P.C.V. usually rises spontaneously on R.D.T. provided investigations requiring blood are reduced to a minimum. Iron overload may be a paradoxical finding and is usually due to recurrent transfusions prior to the commencement of R.D.T. but can be aggravated or develop if maintenance transfusion requirements remain high. The dialysate may be a further source of free iron. There have been reports of the use of chelating agents in patients with severe haemosiderosis on R.D.T. (Tisher et al., 1966). Coagulation defects are not uncommon in chronic renal failure and R.D.T. Heparin rebound with excessive blood coagulation has been reported as a cause of shunt clotting and priapism. Rebound anticoagulation may also occur producing haemorrhage from shunt sites and into the skin due to late mobilisation of heparin from fat deposits. Intramuscular injections must not be given during or shortly after dialysis.

Neuropathy, Osteodystrophy, Metastatic calcification, Gout and Pseudo-Gout

All these can accompany chronic renal failure. Early reports that they might arise de novo or if present, progress on R.D.T. were probably the result of under-dialysis when only 18 hours dialysis was performed each week.

The neuropathy is peripheral, symmetrical and predominantly sensory in the lower limbs. Nevertheless motor involvement does occur. Neuropathy has an incidence of 13-24% in chronic renal failure in this country (Coomes et al., 1966). Clinical improvement is obtained with adequate dialysis but nerve conduction may take over a year to improve. The aetiology is undefined, but is related to the retention of metabolites, not necessarily urea, and possibly abnormalities of magnesium metabolism.

Renal osteodystrophy including osteomalacia, secondary or tertiary autonomous hyperparathyroidism, osteoporosis and osteosclerosis is common. Patients are in negative calcium balance, but this can be corrected using a dialysate ionised calcium of 6 mg./100 ml. and perhaps oral calcium supplements. However, if attempts are made to push these patients into positive calcium balance too rapidly, metastatic calcification will develop (Kaye et al., 1966). In addition, it may be necessary to give oral vitamin D and calcium supplements in gross osteomalacia. With severe secondary hyperparathyroid or with autonomously-acting parathyroids, partial parathyroidectomy may be necessary. Osteoporosis can be aggravated by large doses of heparin and therefore heparin requirements should be reduced to a minimum.

Metastatic calcification occurs in soft tissue, namely in the eye, joints and the blood vessels, when the Ca and PO₄ products rises above 75. If the serum phosphate is reduced by dialysis and aluminium hydroxide orally, improvement may be expected.

Secondary gout is rare and allopurinol has been used occasionally in severe hyperuricaemia resistant to R.D.T. (Hayes et al., 1965). Pseudo-gout or calcium gout is a manifestation of metastatic calcification.

Miscellaneous accompaniments of R.D.T.

Space does not permit a full record of all the protea manifestations accompanying R.D.T.

Uraemic symptoms are controlled effectively. Pruritis occurs and can indicate dietary indiscretion causing hyperkalaemia. The pigmentation of chronic renal failure is unaltered by R.D.T. Alopecia has been seen, possibly related to the excessive use of heparin, and hirsutes of the limbs has been attributed to the improved nutritional state and positive nitrogen balance on R.D.T. All patients are sub-fertile, due to oligospermia and impotence in the male and to disturbance of ovulatory cycles in the female—there has been no report of a successful pregnancy during dialysis. Pericarditis can occur and has led to cardiac tamponade from haemopericardium during dialysis. Outbreaks of icteric and anicteric infective and serum hepatitis have been reported in several centres, involving patients and staff (Friedman, 1967). Prophylactic human γ -globulin is under test but early reports are equivocal. Psychiatric complications are usually minor and the patients generally become well-adapted and often fully rehabilitated on R.D.T.

Future developments

One can expect rapid improvement in the design and efficiency of dialysers and selectivity of membranes allowing more frequent but shorter dialysis. Small portable dialysers giving continuous dialysis may be seen in the future. Transient dialysis centres are being developed in most European and American countries, allowing patients on R.D.T. to travel abroad socially or on business. With the marriage of dialysers' and 'transplanters' towards a common goal the positions of both R.D.T. and renal homotransplantation in the light of the rapid progress being made will become more clearly defined. Home dialysis offers the greatest prospect for rapid expansion of R.D.T. provided it has the full support of the general practitioner, community health service and a hospital renal centre.

Summary

The evolution of R.D.T. has been outlined and some of the more important facets explored. Intermittent haemodialysis should be a means not only of prolonging life but of rehabilitating and returning a few patients with chronic uraemia to a near-normal existence. Yet, only by considering R.D.T. in its correct role, as a major contribution to the relatively small problem of chronic renal failure can real progress be made in the wider field of nephrology. It must be viewed in its correct perspective, that it, as a belated attack on a disease already advanced beyond effective or even partial cure. Renal disease like all other diseases should be prevented rather than treated.

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Research in The Physiology Department

edited by N. Joels, B.Sc., M.B., B.S., Ph.d.,

Department of Physiology, St. Bartholomew's Hospital Medical School.

Several years have passed since the *Bart's Journal* carried an article on the research work being undertaken in the Physiology Department. In that time new members have joined the staff and the studies previously reported have progressed sufficiently to warrant a fresh description. In the following account members of the department describe some of the main projects on which they are currently engaged.

Control of the Cardiovascular System by the Carotid and Aortic body Chemoreceptors (Professor M. de Burgh Daly)

The control of respiration by the peripheral arterial chemoreceptors situated in the carotid and aortic bodies is well known. Their effect on the heart and circulation is, however, less well documented, and during the past few years therefore this problem has been studied in detail, with particular reference to the relative

contributions of the carotid bodies on the one hand and the aortic bodies on the other.

The classical method of studying such reflexes is to isolate the carotid sinus-carotid body region and perfuse it by a pump or a donor animal with blood, the composition of which can be controlled at will. Hitherto the only way of selectively stimulating the aortic bodies has been by injections of drugs into the left ventricle or ascending aorta. This is not an entirely satisfactory procedure because it is difficult to exclude the drug acting on adjacent receptors. In collaboration with Dr. A. Howe (Chelsea College of Science and Technology), Miss J. L. Hazledine and Dr. A. Ungar, a technique was therefore developed in which the aortic bodies were isolated from the circulation and perfused with blood. In effect the whole of the aortic arch was isolated from the circulation and separately perfused by means

of a pump. The remainder of the systemic circulation was maintained by a cardiac bypass procedure. For this purpose a pump perfused the systemic circulation at constant blood flow and the oxygenation of the systemic blood was carried out in isolated perfused lungs obtained from a second dog, so that the PO_2 , PCO_2 and pH of the perfused dog's systemic arterial blood was maintained constant. After the necessary surgical procedures had been completed the chest was closed, the pneumothorax reduced and spontaneous respiration re-established. In many of these experiments the carotid bodies were isolated from the circulation as well and perfused by means of a separate pump. This enabled a comparison of the reflex responses from the carotid and aortic bodies to be made by separately stimulating them by hypoxic blood.

These experiments have shown that so far as respiration is concerned the carotid bodies cause an increase in respiratory minute volume approximately seven times greater than that elicited by stimulation of the aortic bodies with blood of the same composition. When one compares the reflex changes in systemic vascular resistance from the two groups of chemoreceptors again a difference is observed. Whereas the carotid bodies cause small and variable changes in vascular resistance, stimulation of the aortic bodies invariably produces vasoconstrictor responses.

The explanation of the different vasomotor responses is that in the spontaneously breathing animal we are dealing with a complex interaction between the primary vasoconstrictor reflexes from the carotid and aortic bodies on the one hand, and on the other, secondary effects resulting from the concomitant stimulation of breathing which evokes the opposite effect, vasodilatation. In the experiments under discussion the most important secondary effect is an inflation reflex arising from sensory receptors in the lungs which causes systemic vasodilatation. It might be expected therefore that this secondary reflex would become more prominent in those chemoreceptor responses which produce the largest ventilatory response. Evidence has been obtained which supports this hypothesis; thus when the carotid bodies are stimulated after denervation of the lungs to exclude this secondary reflex, an increase in systemic vascular resistance now occurs which is not significantly different from the response produced by stimulation of the aortic bodies.

Such experiments have demonstrated for the first time the quantitative nature of the reflex

responses elicited by separate excitation of the two main groups of peripheral arterial chemoreceptors using a physiological stimulus. What is not quite clear yet, however, is why the carotid and aortic bodies should produce such different effects on respiration and yet identical primary responses on the systemic vascular resistance. The possibility that the central connections from the two groups of chemoreceptors are different may offer an explanation for this phenomenon.

Studies on the regulation of the cardiovascular system by peripheral chemoreceptors, in particular the carotid bodies, have repeatedly pointed to the important role played by an inflation reflex from the lungs initiated by the concomitant hyperventilation. This reflex has recently been made the subject of a separate investigation and the evidence would suggest that it is initiated by stimulation of pulmonary inflation receptors situated in the airways. The size of the vasodilator response varied directly with the pressure and volume of the gas used to inflate the lungs, and this occurred whether inflation was carried out by a positive pressure applied to the inside of the lungs or by a negative pressure applied to the outside of the lungs. The afferent pathway for the reflex lies in the cervical vagosympathetic nerves and occasionally in the stellate ganglia as well. The efferent pathway is by way of the sympathetic nervous system, the vasodilatation being due to a reduction in vasoconstrictor tone. The lungs appear to be a constant source of afferent impulses inhibiting the vasomotor centre and this lung inflation-systemic vasodilator reflex must be considered a potential mechanism operating in eupnoeic breathing. In collaboration with Dr. B. H. Robinson (on leave from the University of Michigan) it was shown that the blood vessels participating in the response are those in skeletal muscle, skin and the splanchnic vascular bed.

It remains to be discovered whether this reflex exists in man. A study of the effects of artificial inflation of the lungs in patients undergoing cardiac bypass operations, when the systemic circulation is perfused at constant flow, might provide some valuable information in this connection.

Inflation of the lungs is also known to cause reflexly changes in heart rate and this mechanism is partly responsible for normal sinus arrhythmia. There is, however, no information concerning the identity of the pulmonary receptors involved mediating the cardio-accelerator response, and this was made

the subject of a separate study which is described in the next section.

Reflex changes in heart rate produced by lung inflation

(Mr. R. W. Wilmott and Dr. P. K. Leaver)

This problem was investigated using an innervated heart-lung preparation. This consisted essentially of a Starling-type heart-lung preparation which circulated blood through the head, thus preserving the nervous control of the heart. An adjustable peripheral resistance included in the circuit enabled the arterial pressure to be held constant. The blood gas tensions were measured at frequent intervals and were held constant despite imposed changes in the degree of lung inflation by suitably modifying the oxygen and carbon dioxide concentrations of the gas used to ventilate the lungs. The activity of pulmonary mechanoreceptors was monitored by recording the afferent nerve impulse discharge in slips of the cervical vagus nerve.

In this preparation, lung inflation caused striking changes in heart-rate. A single inflation commonly increased heart-rate by 300-400%. These increases often exceeded those produced by changes in the activity of the carotid sinus baroreceptors evoked by reducing the pressure in the isolated perfused carotid sinuses of the same animal. This was surprising in view of the potent influence which the sinus baroreceptors are known to exert on the circulation.

The evidence at present available indicates that the particular pulmonary receptor which when excited leads to inflation tachycardia is the same as that which mediates the familiar Hering-Breuer respiratory reflex. Thus progressive cooling of the pulmonary vagus abolished the inflation tachycardia at the same temperature (about 8°C) as that which blocks the Hering-Breuer reflex. Furthermore the changes in heart-rate on lung inflation mirrored the changes in the discharge of the pulmonary stretch receptors; for example, the time of greatest increase in heart-rate corresponded to the time at which the discharge frequency reached its peak.

The tachycardia described above was produced by moderate lung inflations within the normal physiological range. Some previous workers have reported that very large inflations produce reflex bradycardia. In the present experiments reflex bradycardia could only occasionally be elicited by large lung inflations and therefore it has not been possible yet to make a thorough study of the response. How-

ever, the earlier accounts mention that bradycardia could be more easily produced when the lungs had become oedematous or were otherwise pathological. Reflex bradycardia is known to result from the inhalation of noxious gases and it seems likely that, after the lungs have undergone pathological changes, the pulmonary receptors which normally initiate reflex bradycardia when stimulated by these chemical agents become responsive to the mechanical stimulus of large inflations. However, pulmonary oedema was never observed in those experiments of the present series in which bradycardia resulted from large inflations. It is therefore felt that the reflex bradycardia described here may have a different origin to that described in earlier studies and that the receptors concerned may not be in the lung parenchyma but located in the trachea where their principal role is to subserve the cough reflex. Work is in progress to examine this point further.

Respiratory and Cardiovascular reflexes in Systemic hypoxia (Dr. G. B. Rushman)

The amount of chemoreceptor tissue in the aortic region varies from one animal species to another. It was therefore of interest to find out whether the relative contributions of the carotid and aortic bodies to the control of respiration and the cardiovascular system as described above in the dog, were the same in the cat and rabbit.

In these experiments hypoxia was induced in spontaneously breathing anaesthetized animals by the inhalation of either 10% or 6% oxygen in nitrogen. This resulted in an increase in respiratory minute volume. When the carotid bodies were denervated by section of their afferent nerve supply, the same gas mixture had practically no effect on breathing. The average increase in respiratory minute volume on exposure to hypoxia was only 10% of that seen in rabbits and only 20% of that observed in cats with innervated carotid bodies. In other experiments division of the afferent nerve supply of the aortic bodies, leaving the carotid sinus nerves intact, had a smaller effect on the hyperpnoea of systemic hypoxia, only reducing it in the rabbit to 50% and in the cat to 70% of the values before denervation of the aortic chemoreceptors. These experiments show that the carotid bodies make the greater contribution to the hyper-ventilation seen in systemic hypoxia.

Another approach to this problem has been by the injection into the circulation of drugs

which in small doses act as specific chemoreceptor stimulants. One such substance is sodium cyanide. When this is injected into the left ventricle via a cardiac catheter in doses of 50-100 µg, there is again an increase in respiratory minute volume due to an action on the peripheral arterial chemoreceptors. As in the case of systemic hypoxia the hyper-ventilation response is almost abolished when the carotid bodies are denervated. Section of the nerves to the aortic bodies causes a much smaller reduction. These results showed that the reflex potency of the carotid bodies in causing hyperpnoea is approximately seven times that of the aortic bodies.

These findings were confirmed using another technique. A temporal separation of the reflex effects of stimulation of the two groups of chemoreceptors was made by delaying the arrival of a drug at the carotid bodies. Each carotid artery was ligated and reconnected across the ligature by two metres of polythene tube. Sodium cyanide injected into the left ventricle then stimulated first the aortic bodies causing a small transient hyperpnoea and 45 seconds later the agent reached the carotid bodies which were also stimulated resulting in an increase in respiratory response nine times that evoked from the aortic bodies.

The relative contributions to the cardiovascular reflexes resulting from stimulation of the carotid and aortic bodies are also under study. Experiments carried out so far indicate that, in anaesthetized animals under positive pressure ventilation, administration of either 10% or 6% oxygen in nitrogen results in bradycardia and hypertension. Denervation of the carotid bodies or the aortic bodies reduces this effect by half, showing that they are equally potent in this respect.

This investigation shows, therefore, so far as the control of respiration by peripheral arterial chemoreceptors in the rabbit and cat is concerned, that the carotid bodies are much more important in evoking the hyperventilation of systemic hypoxia. However, they are equally important in producing the primary cardiovascular reflex responses of bradycardia and hypertension. These primary effects are only seen when the animals are under constant positive pressure ventilation.

In conclusion, it should be stressed that though the relative contribution of the carotid and aortic bodies to cardiovascular and respiratory reflexes in systemic hypoxia generally conforms to the pattern described above, there is considerable variation in the

degree to which the carotid bodies predominate in individual animals.

The mechanism of respiratory stimulation by adrenaline and noradrenaline (Dr. N. Joels and Dr. H. White)

The intravenous infusion of small doses of adrenaline and noradrenaline has been shown to stimulate respiration in man and in anaesthetized cats and dogs. However the mechanism whereby catecholamines produce this stimulation has not been well-defined. The experiments to be described were performed to examine the possibility that adrenaline and noradrenaline might increase the sensitivity of the carotid and aortic body chemoreceptors leading to an increased chemoreceptor input to the respiratory centre and hence to an increase in ventilation which would be reflex in origin.

The blood pressure, tidal volume and respiratory frequency were recorded continuously before and during the infusion of catecholamines into anaesthetized cats breathing room air, 100% O₂ and hypoxic gas mixtures (10% O₂ in N₂ and 5% O₂ in N₂). The doses of adrenaline and noradrenaline infused ranged from 0.5 to 1.3 µg/kg. min. These doses were judged to be within the physiological range since it has been shown that up to 2.5 µg/kg. min of catecholamines can be released from the adrenal medulla of the cat during asphyxia.

In cats breathing room air or hypoxic gas mixtures the pulmonary ventilation rose by approximately 15% during catecholamine infusion. By contrast, the breathing was unaltered during the infusions in cats inspiring pure oxygen. Catecholamine infusion has been shown by other workers to similarly increase the ventilation in unanaesthetized human subjects breathing air or low-oxygen mixtures and to have no effect when 100% O₂ is inhaled. This association between ventilatory stimulation by catecholamines in the presence of a normal or reduced P_{O₂} and the absence of stimulation when the P_{O₂} is raised suggested that the carotid and aortic body chemoreceptors, which are specifically sensitive to a reduction in arterial P_{O₂}, might participate in the response. The effects of catecholamine infusions were therefore compared in a group of animals before and after section of the carotid sinus and aortic nerves to divide the afferent chemoreceptor fibres. Since cutting these nerves also divides the baroreceptor fibres from these areas, a blood-pressure compensator was used to stabilize the pressure at the level

existing before nerve section. Following nerve section, adrenaline and noradrenaline, which had previously stimulated the breathing in the same animals, now had no effect whatsoever.

In another group of animals the afferent discharge in chemoreceptor fibres of the sinus nerve was recorded and the increase in ventilation during catecholamine infusion was found to be accompanied by an increase in the chemoreceptor impulse traffic.

Further evidence favouring the view that the stimulation of respiration by catecholamines is due to an increased chemoreceptor input to the respiratory centre, was gained from experiments in which adrenaline and noradrenaline were infused intra-arterially into the vicinity of the carotid body on one side only. The doses employed (0.1–0.2 $\mu\text{g}/\text{kg}\cdot\text{min}$) were only a fraction of those infused intravenously yet a comparable increase in ventilation occurred and this was abolished by section of the corresponding sinus nerve. Again, there was an increase in the discharge of chemoreceptor fibres in the sinus nerve.

If respiratory stimulation by catecholamines is due to a chemoreceptor reflex, the origin of the increased chemoreceptor discharge must be considered. The carotid body, relative to its size, has an enormous blood flow and is very sensitive to any reduction in this flow, i.e. to stagnant hypoxia. Direct measurements of carotid body flow by Daly, Lambertsen and Schweitzer have shown that this flow is reduced by adrenaline injections providing the arterial pressure is prevented from rising. In the present experiments the doses of catecholamines were such as to increase blood pressure by no more than 5 mm Hg. Furthermore, if the carotid body is perfused at constant pressure with fluid containing noradrenaline an increased chemoreceptor discharge is observed.

It therefore seems likely the arterial chemoreceptors are largely responsible for the stimulation of breathing by catecholamines, and that the increased sensitivity of the chemoreceptors during catecholamine infusions can be attributed to a reduction in their blood flow resulting from the constrictor action of these drugs on their vessels of supply.

The action of metabolic inhibitors on taste responses in the frog (Dr. I. P. Griffith)

Despite the fact the gastronomy has been a subject of considerable interest for many hundreds or even thousands of years, little is known of the way in which taste receptors are stimulated. One current suggestion is that taste

sensation is initiated by a physical binding of ions and molecules of the taste substance to specific sites on the taste cell membrane. This leads in turn to depolarization of the membrane, the development of a receptor potential, depolarization of the adjacent nerve terminals and the initiation of afferent impulses in the taste fibres of the lingual and glossopharyngeal nerves. An alternative theory, stemming from the histochemical demonstration of the presence of numerous enzymes in the gustatory epithelium, suggests that enzymic processes within the receptor cell may be immediately concerned in taste perception. The effects of metabolic blocking agents on the response to taste stimuli have therefore been examined to try to distinguish between these possibilities. If the mechanism of taste stimulation is primarily enzyme-dependent the responses might be modified by metabolic inhibitors, whereas these would be unlikely to affect a simple binding of taste substances to the receptor sites.

The frog was chosen as the experimental animal for this investigation because much is already known of the taste responses in this species. The tongue was brought forwards out of the mouth and the various solutions applied to its dorsal surface. The discharge in the glossopharyngeal nerve, which carries all the taste fibres in the frog, signalled stimulation of the taste receptors. Distilled water, 0.5 M sodium chloride and 1 M glucose were selected as test solutions, the frog being one of the species which has the ability to "taste" water, and the discharges evoked by these stimuli were compared with the responses to the same test solutions when the inhibitors had been added to them in concentrations ranging from 0.05 mM to 20 mM. The metabolic inhibitors used were sodium cyanide and sodium amytal, which block the flavoprotein-cytochrome electron transport chain required for intracellular oxidation, 2:4 dinitrophenol, which by uncoupling phosphorylation from respiration prevents the incorporation of the energy released by respiration into high-energy phosphate bonds, and sodium azide, which has both of these actions.

The response to distilled water was depressed by the presence of any of these inhibitors in concentrations between 0.1 mM and 0.5 mM. Similar depression of the response to 1 M glucose occurred with inhibitor concentrations between 0.5 mM and 1 mM. These effects were rapidly reversible, subsequent application of distilled water or 1 M glucose without inhibitor eliciting a full response. Water taste has pre-

viously been shown to be depressed by small concentrations of inorganic salts but the concentrations required to produce comparable effects were at least ten to twenty times greater than those of the metabolic inhibitors. The action of the inhibitors cannot therefore be attributed simply to the presence of sodium ion.

When the concentration of the metabolic inhibitors was raised to 2 mM or more, repeated application led to a depression of the responses to distilled water and glucose which was complete and permanent.

These results show that metabolic inhibitors can reduce or abolish the sensitivity of the frog's tongue to distilled water and glucose. This suggests that enzymic processes are involved in the stimulation of the taste receptors by these agents. On the other hand, the response to 0.5 M NaCl appeared to be unaffected by the presence of 5 mM sodium cyanide, amytal or azide, indicating that salt taste is less intimately linked to the metabolic processes blocked by these inhibitors. However, the salt response was depressed by 2:4 dinitrophenol at a concentration of 0.5 mM and abolished irreversibly at a concentration of 5 mM, which hints at the participation of some metabolic pathways in salt taste perception also.

Studies of baroreceptor activity in an isolated aortic arch preparation

(Dr. Jennifer E. Angell James)

It has generally been assumed that the baroreceptors of the aortic arch behave in a similar way to the carotid sinus baroreceptors so far as their response to pressure is concerned but hitherto no-one has proved this experimentally. There is almost certainly one way in which the two groups of receptors differ from each other—the aortic receptors, in contrast to those in the carotid sinuses, are subjected to rhythmic changes in extramural pressure due to fluctuations in intrathoracic pressure during breathing. The physiology of the aortic arch receptors has therefore been studied in detail with special reference to this point.

For this purpose a technique was developed for perfusing the aortic arch and proximal parts of its major branches with blood or an artificial medium. The perfusion system allowed the mean pressure and pulse pressure in the aortic arch to be varied independently of each other. The aortic arch with its afferent nerve supply and surrounding structures was excised from the animal and placed in a

Perspex box (at 37°C) representing an artificial thorax. The air in the box could be subjected to changes in pressure. Single fibres in the aortic nerve were dissected out and placed on electrodes inside the perspex box. The action potentials were amplified and recorded in the conventional way.

The impulse frequency from these receptors was correlated with changes of endarterial pressure. As with the carotid sinus baroreceptors, the aortic arch baroreceptors have a threshold stimulus corresponding to between 20 and 100 mm Hg. Above the threshold pressure, the frequency of discharge increases linearly within the normal range of blood pressure and then reaches a plateau in the higher range of pressure. When the intrathoracic pressure is reduced an increase of discharge also occurs and is of the same magnitude as that produced by an equivalent rise in intra-aortic pressure, thus the frequency of discharge is related to the transmural pressure. The change in intrathoracic pressure occurring during breathing will therefore affect the discharge from the aortic baroreceptors by this mechanism.

It is interesting to note that the plateaux of the curves for different fibres were usually in the same pressure range. It is thought that this may be related to the physical properties of the aortic arch wall and may well be of some importance in pathological states. In this connection it was found that deliberately altering the elastic tension of the wall changed the pressure at which the peak discharge occurred.

In the same preparation other properties of the aortic receptors were investigated. For instance it was shown that the discharge frequency at any given pressure was related to temperature so that the frequency was less at lower temperatures; at a temperature of 20°C some receptors are inactive at pressures up to 200 mm Hg. Some information on the mode of excitation of receptors was obtained by the use of drugs injected into the perfusate. Acetylcholine caused some increase of receptor discharge but although this effect was abolished by hexamethonium the receptors could still be excited by the natural stimulus of a rise of aortic pressure. Noradrenaline on the other hand caused, in some cases, a discharge which was probably due to an effect on the arterial wall.

In order to relate these findings to the part played by the aortic baroreceptors in the reflex control of the circulation, a preparation was devised in which the carotid and aortic baroreceptor areas of the dog were isolated

from the circulation and separately perfused with blood. Briefly, it has been shown that, so far as the control of peripheral vascular resistance is concerned, the carotid sinuses are rather more important than the aortic arch. Further, the reflex control of the circulation is dependent not only on the mean blood pressure in the carotid sinuses and aortic arch, but also on the pulse pressure. Thus, an increase in mean pressure in either area, or in the pulse pressure (the mean pressure remaining constant) results in inhibition of the vasomotor centre and therefore in reflex vasodilatation.

This study has demonstrated that the physiological properties of the aortic baroreceptors are similar to those in the carotid sinuses. However, the aortic arch, being situated within the thorax, is subjected to changes in transmural pressure due to alterations in intrathoracic pressure and this results in modification of the baroreceptor discharge. These pressure changes can therefore modify vasomotor tone reflexly.

The release and action of sympathetic transmitter in the spleen (Dr. B. N. Davies, Dr. P. G. Withrington and Mr. J. Gamble)

Stimulation of most postganglionic sympathetic nerves leads to the release of the transmitter noradrenaline at the nerve terminals. However, little is known of the quantitative relationships between the amounts of transmitter released and the response of the tissue as a result of sympathetic nerve stimulation at various frequencies. This problem has been investigated using the spleen, in which the amounts of noradrenaline released by sympathetic stimulation can be obtained by measuring the noradrenaline content of the venous outflow, and the response to stimulation can be gauged from the changes in volume when the spleen contracts.

The release of noradrenaline at various frequencies of nerve stimulation was examined in the cat spleen. To collect the splenic venous outflow, the animal was eviscerated and the superior mesenteric vein cannulated. Occlusion of the portal vein then diverted the splenic venous blood out through the cannula where it could be collected. The noradrenaline content was assayed by the effect on the pithed rat's blood pressure.

In the course of the work, this method underwent several modifications, because at frequencies of nerve stimulation below 10/sec it became difficult to measure the amounts of noradrenaline released on account of the

minute amounts involved. Furthermore, most of the transmitter released from the sympathetic nerve endings is taken up by sites on the smooth muscle or reincorporated into the nerve endings, so that very little appears in the venous blood from the organ. This uptake of the released noradrenaline was blocked in our experiments by the use of phenoxybenzamine. As a further aid to the measurement of the noradrenaline released by sympathetic stimulation, the vascular supply of the spleen was occluded during stimulation. This increased the noradrenaline concentration of the venous blood collected immediately following the release of the occlusion. Even with the aid of phenoxybenzamine and occlusion during stimulation the amounts of noradrenaline collected following low frequency stimulation were very small, as little as 10^{-9} gm being present in the venous blood. Nevertheless it proved possible to measure the quantities released with frequencies of stimulation down to 1 sec.

It was found that the noradrenaline released per stimulus increased with stimulus frequency to reach a maximum at 7-10/sec, which corresponded to the maximum mechanical response, i.e. contraction of the spleen. At higher frequencies the amount released per stimulus declined. It is of interest that the upper limit of the normal range of discharge frequency found in postganglionic sympathetic fibres *in vivo* is 10/sec.

In the foregoing experiments on the cat spleen, changes in the size of the organ on sympathetic stimulation could not be measured accurately. These volume changes are now being quantitatively studied using the dog spleen, vascularly isolated and perfused from the femoral artery of a donor dog. The splenic venous outflow is returned to the femoral vein of the donor animal. The spleen is placed in a plethysmograph which enables changes in volume to be recorded and simultaneous measurements are made of arterial perfusion pressure, blood flow and vascular resistance. With this preparation we have made the following observations:—

1. A separation of the responses of vascular and capsular smooth muscle to sympathetic nerve stimulation can be made by altering the parameters of stimulation. Low frequency stimulation (less than 1/sec) initiates capsular changes only and high frequencies (2-10/sec) produce changes in splenic vascular resistance.
2. Arterial infusions of graded doses of noradrenaline and adrenaline produce a

similar separation of responses. Angiotensin, however, produces predominantly vascular responses.

3. In conjunction with Professor E. W. Horton, we have studied a new aspect of chemical transmission in the spleen. We have shown that stimulation of splenic sympathetic nerves results in the appearance of an acidic lipid prostaglandin in the splenic venous blood. Subsequently we have shown that one of the prostaglandins is a potent vasodilator of the splenic vasculature.
4. Using graded doses of the sympathetic blocking agent phenoxybenzamine, we have shown that the vascular component of the response to sympathetic nerve stimulation is more susceptible to blockade than the capsular component. An analysis is being made of the correlation between transmitter release and the responses of the two components.

Future work. The situation could be clarified if more information were available on the arrangement of the vasculature within the spleen, on the reactivity of the various vascular components, and on the effects of sympathetic stimulation on the capsular muscle.

The responses of various components of the splenic vasculature to the application of trans-

mitter substances have been observed by various workers using the transillumination technique originally devised by Knisley. The animals used in these experiments were mice, since parts of the mouse spleen are so thin that they transmit sufficient light to make detailed microscopic examination possible. Unfortunately, the dimensions of the dog and cat spleen are such that transillumination studies are impossible. On the other hand, the mouse spleen is too small for the manipulative procedures required to study the output of noradrenaline and the changes in splenic volume on sympathetic stimulation. However, it is desirable that such studies and the microscopic observation of changes in the vasculature on stimulation should be made in animals of the same species since there is considerable species variation in splenic structure and possibly a species variation in the response of the spleen to identical stimuli.

Fortunately, the rat spleen is suited to a modification of the technique, described in the previous section, for investigating changes in venous outflow and spleen volume. Work is now in progress to relate these changes to the responses of the vascular and capsular muscle components as observed microscopically.

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