

# SINGAPORE MEDICAL ASSOCIATION



# NEWSLETTER

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## EDITORIAL

### Too Little Too Late

For the doctors in Government Service, the long and eagerly awaited Goh Chok Tong report on Professional Services in the Singapore Civil Service must have been yet another big let-down. When it was first heard that a Committee had been formed to look into the subject, the hope had been that a fresh and unbiased review of the situation would lead to much needed changes: The powers that be had finally recognised that it was unrealistic to expect top rate professionals to stay on in the Service unless they could look forward to career prospects comparable to those of their colleagues in the private sector. And yet, despite having started on this very promising premise, what new deal, what new benefits has the average doctor been offered?

Attention has been centred on the urgent necessity to retain the top men in the profession. No one will dispute this; junior doctors themselves have bemoaned the departure of their teachers and seniors, from whose experience and guidance they would have gained much. Any scheme to narrow the gap between the earnings of these officers and that of their peers in private practice is welcomed by all. But even with them, the Committee could surely have been more generous. Consultants in the Government hospitals do not see only patients referred in for specialist attention as their sole duty—they also have responsibilities in overseeing other patients warded in their units who are not consultation cases, and in advising their colleagues in other Government departments on problems pertaining to their own specialty. As such, it is surely not unreasonable to continue payment of their current specialist allowance as well as to allow them to retain consultation fees up to 60% of their consolidated salary.

For the 80% of Government doctors who are below Consultant status — the Medical Officers, Registrars and Senior Registrars — the workhorses who keep the wheels turning in the Medical Service—there is little promised except "improved promotion prospects". Since promotion in the Medical Service is governed by rigid promotional criteria which stipulate the minimum number of years of experience required to progress from one level to another, and no revision of these criteria is in sight, despite the fact that the S'pore Government Medical Dental and Pharmaceutical Officers Association has been pressing for this for the past couple of years, the young doctors may be forgiven for being understandably skeptical of such promises. Few Division One Officers in other sectors of the Civil Service expect to do overtime duties, 15 hours at a go, on a regular basis, perhaps twice a week or thrice a fortnight, month in and month out. Some recognition must be forthcoming for these dedicated officers, something more substantial than promises, and the very occasional scraps tossed from the Ministry table such as the "token" remuneration for night duties given as a "concession" a year ago, which works out to be the majestic sum of about \$1.50 per hour. One does not need to compare this to the \$65/= per 12 hour night shift that private nurses get and the \$10/= per hour of teachers at the AEB to know that these young men and women deserve far more than they are getting.

J. L.

## \*The High Cost of Health A Radiological Perspective

The subject of my address covers a problem that is causing a good deal of concern to health care providers and administrators the world over, and is one that should increasingly engage the attention of the practitioners of health care themselves, viz doctors, nurses, radiographers and others. This is the problem of the escalating cost of health.

In developed countries with well-established health services, the health care industry is generally among the biggest and may account for up to 8% of the GNP. Health expenditure has been rising at a rate higher than inflation, as judged by the overall Consumer Index, and higher

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Delivered at the International Society of Radiographers & Radiological Technicians 3rd Asian and Australasian Conference, Singapore, on 26 Oct 1979.

than population growth. Between 1974-76, for example, health expenditure in the USA grew 50% faster than the Consumer Index for goods and services. In Singapore published figures show admissions to major hospitals between 1974-78 increased by 30% compared with a population growth of only 5.2%. In other words, quite apart from inflation and normal growth of population, each one of us consumes more and more health services every year as time goes by.

We have to look to other factors to account for the escalation of health costs.

The first to be considered is the explosive accumulation of new medical knowledge that has taken place over the last few decades. Before the First World War, a single doctor could cover the whole field of medical knowledge and become an efficient all-rounder-the 'complete doctor' as we might call him. We know that this is no longer possible. From 1930 it is esti-

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## Should a lady doctor specialise?

The discrepancy between the numbers of male and female specialists in the medical field is immediately obvious to anyone who can lay hands on a list of staff of any of the Government hospitals in Singapore today. One recent list which I came across, which noted down those of Senior Registrar and Senior Lecturer level and above in all of the Government hospitals, including University Departments revealed a figure of about 150 men in these positions compared to about 20 women, a

ratio of 7.5 to 1. Even taking into consideration that the intake of women medical students into the course yearly is only about a quarter to a third of the total, it is obvious that much fewer women graduates persist in their medical careers to make it to the top in their profession.

### Myth or truth

There is nothing new or earthshaking in this finding; it has long been known and acknowledged that much fewer women doctors than their male colleagues continue

in the pursuit of postgraduate honours. Most are content with their MBBSes, and to concern themselves mainly with primary health care either in government service or as private practitioners. Some ultimately opt to do only part-time work, and a few give up practising altogether. And the reason for this that has always been accepted without question, is that it is physically impossible to look after husband, children and home, and at the same time undertake the hardships of

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## STOP PRESS YOUR FUTURE AT STAKE

An Extraordinary General Meeting has been called by the SMA Council to be held:— on Sunday, 27.1.1980 at Pathology Lecture Theatre at 2 p.m.

Members are urged to attend this EGM to give their views and opinion on the Private Hospitals and Medical Clinics Bill.

Free lunch will be served from 12.30 p.m. at the Alumni Restaurant. Please call the SMA Secretariat Tel 2231264 to facilitate catering arrangements.



## Letters to the editor



**Due to lack of space we have held over the letters to the next issue.**

*Continued from Page 1*

mated that medical information has multiplied about a dozen times. Precepts and dicta of diagnosis and management can now change radically within a short time span, and medical students of today accept the prospect of having to revise or modify something like half of the basic concepts and rules that they have been taught or have learned every 6-7 years.

This information explosion has led directly to our present age of medical specialisation, which went through intensified development in the 'sixties. Doctors nowadays practise a 'multi-disciplinary' approach to patient management-which means the involvement of more doctors and therefore correspondingly much more costly. With this approach, patients, it is true, probably receive on the whole more and better care, but the approach also harbours potentially serious problems of co-ordinated management, and the patient may well find himself falling between the stools of the different specialists he consults.

Secondly, the numerous technological discoveries and innovations that accompanied the 'information explosion' imply huge research costs that manufacturers are bound to translate into high equipment prices. So long as the benefits are genuine and significant and little attempt is made at consumer exploitation, many would accept this as the price we have to pay for progress. Among the more recent advances that have made major impacts in Medicine are: the fiberoptic endoscope, which has radically transformed the practice of gastro-enterology; the major advances made in immunology, which have increased so much our understanding of certain classes of disease processes; the gamma-camera; micro-surgery equipment and technique; the introduction of computer techniques into medical technology, leading to the development of the revolutionary computed tomograph, new standards of ultrasonography, the auto-analyser of biochemistry, etc.

etc. Many of these equipments are not only expensive to purchase but expensive to maintain. The high recurrent expense of computer maintenance at 7-8% of capital cost is a case in point.

What we have considered so far is the cost due to progress made in Medicine itself and in its technology. But one of the more disturbing aspects of health costs is the question of the rising volume of demand, beyond that of natural population growth. A number of factors can be identified here.

Prominent among them is the fact that we now have a better educated and more affluent public, who have a rising expectation of the kind of health standards that they want and are prepared to pay for.

In Singapore (and I am sure in some other countries as well) additional demand accompanies this through the gradual switch from reliance on indigenous medicine to Western-style medicine, which is the form of health care provided by the Government. The Malay "bomoh", the Chinese "sinsei" and the Indian "marutthuvur" have slowly lost out to the injection needle-though "senseis" are showing a resurgence of strength, perhaps drawing inspiration from the world-wide interest in acupuncture.

Compounding the above situation is the fact that we are in an age of high-powered mass media and high-pressure advertising-both multi-billion dollar industries in their own right. To feed the hungry mass media, reports, reviews and commentaries are generated on almost everything and inaccuracies and sensationalisation of issues when they occur-as they do-can badly mislead a public that is educated but insufficiently educated to be analytical and discriminative. This is a common problem of our era. In the context of health care, it can generate artificial patterns of demand.

Health is so tied in with our primordial instinct of survival that most people demand the best and are pre-

pared to spend on it, for themselves and their families. It is a high priority budget item. I think this is what makes the statement peculiarly true of Health: "Supply creates its own demand" (i.e. supply in the form of new techniques, treatment). Everyone hears about and wants the latest; they want the best within, or even beyond, their means.

There are other factors. It is probably true, for example, that the volume of psychosomatic and other illnesses resulting from the worsening stresses of modern living significantly and adversely compete for our inadequate service resources.

There is also no doubt that an inordinate amount of health care demands is generated by misuse of well-intentioned social instruments. I refer particularly to national health insurance and some other medical insurance schemes in developed countries which have reportedly accumulated ruinous costs in the past. It is quite natural for a person to make maximum use of a facility that he has totally or largely paid for-in this case, the National Health Insurance. What more, when one gets on top of it all the bonus of medical leave!

Other social practices such as pre-employment and pre-insurance medical examinations, also swell demand. Similarly, the popularisation of preventive-type medicine, e.g. in the form of regular multi-phasic health checks. Here there are unquestionably benefits for the individual concerned in terms of psychological re-assurance and the occasional actual early detection of disease. But costs go right up.

One of the most unhappy aspects of health costs is the escalation of medico-legal compensations in recent decades, mainly in the USA. The resultant steep hikes in medical professional insurance (something like US\$35,000-\$40,000 for neuro-surgeons at one period) not only did not prevent insolvency of some of the insurers, but led to strikes and a big hue and cry from doctors, many of whom forced to opt out or retire early from 'risky' professions. Although the USA received the greatest prominence in this respect, the problem exists with the profession everywhere and places a levy, direct or indirect, on costs by encouraging more diagnostic tests and more consultations with a net eye to strengthening any medico-legal defence that may unexpectedly come about.

Finally, we come to health care demands generated by doctors themselves. This is the most logical source of health care demands. However, few will deny that the plethora of technological advances in recent years did have the effect of breeding a degree of over-dependence on the part of doctors on laboratory, X-ray and other instrumental investigations. The latter may even be routinely ordered before clinical examination has started in order that results can be marshalled for assessment when the doctor gets to examine the patient. In any case, supportive clinical services, with their already escalating costs, become over-utilised.

It can be seen from the above that many diverse factors conspire to jack up health costs. Some stem from the basics of living, such as the need to maintain an adequate health standard in the face of growing population. Some are tied to our social system, e.g. national health insurance or subsidised medical care for all, negotiated employment benefits, pre-employment requirements, etc. Old familiar factors like inflation assume new threatening proportions that cast a pall of gloom among all social planners, not just medical. There is also the price of genuine progress, which has never been cheap in the second half of the 20th century. So much of what I have enumerated above are long entrenched provisions and practices that major pruning becomes very difficult-perhaps until (God forbid!) stark necessity overwhelms all arguments. For the moment it is in the areas of wastage and abuse that I believe we can best hope to achieve savings-which can be large.

Radiology is now reputedly the most expensive clinical support service. A good part of this is undoubtedly due to the high-technology, and therefore inherently expensive nature of our practice. It is not surprising that it is here that computer-assisted techniques first enter into Medicine in a big way. It is here that equipment costs rocket past the million-dollar range, e.g. the linear accelerator, the computed tomograph, the gamma-camera, angiography/angiocardiology setups, apart from other expensive developments such as computer-assisted ultrasonography, etc. But if it is considered desirable to incorporate such advances into the

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radiological armamentarium, these costs have to be absorbed. It remains for the radiologist to be careful in planning, prudent in selecting equipment and to optimise their utilisation so that the economics of their purchase can be vindicated.

Beyond the very high capital and maintenance costs, I will mention Radiotherapy only to dismiss it quickly, as wastage and abuse are much less likely here than with Diagnostic Radiology, with its massive turnover volume. It is on Diagnostic Radiology that I propose to dwell further.

One fortunate aspect of radiological work is that it accepts only doctors' requests. Patients cannot demand to be examined or treated. This cuts down one potential source of 'over-demand'. However, doctors themselves can cause over-demand.

Referring doctors do vary widely in their indications for radiology requests, some so liberal as to constitute misuse. A number still fall into the habit of ordering additional projections based entirely on their own judgment, which not infrequently proves inappropriate. I believe Radiology Departments have an important responsibility to guide referring doctors, especially younger ones, in this respect, helping them to tighten their criteria for making requests, to choose the

best procedure for a particular problem, space out follow-ups, and so on. This can help to reduce many unnecessary requests and at the same time inculcate in those using the service better understanding and greater cost awareness. Ideally of course such inculcation should commence early in undergraduate days.

The problem of medico-legal X-rays requires a separate approach. These X-rays are often not indicated and are ordered purely to stave off any charge of negligence. A good example are skull X-rays in Accident and Emergency departments. The answer must lie in a willingness on the part of medico-legal authorities concerned to accept clinical judgment as an adequate alternative to the X-ray for defence purposes or for purposes of workers' compensation. Otherwise, the wasteful practice will simply go on.

One area in which the Radiological Services get criticised is the proliferation of imaging techniques (CT, nuclear medicine, ultrasound, thermography) which are supplementary to one another rather than replacements. A new expensive technique adds to but cannot replace the existing one. As a result, costs build massively up.

Unfortunately this is largely true, particularly since these new imaging modalities are in a comparatively early phase of development. It will take some time before their

comparative roles can be fully defined beyond question. But already, close co-ordination between the departments responsible and pragmatic group evaluation of each piece of imaging of a patient as it gets down should make significant savings possible. This is something that is being already done. It should become standard practice, especially where the departments are disseminated.

Pertinent to the question of costs is the importance of good radiography, which cannot be over-emphasized. The cost of 'repeats' can be high. A 10% 'repeat' rate would add \$100,000 to the annual bill for an annual film budget of \$1-million. 'Repeats' do not mean just those films that have to be done again in the Department. They include those asked for by the dissatisfied referring doctor and any additional views or examinations that he feels are indicated because the poor quality film cannot provide him with an answer.

The answer to 'repeats' is as you well know, good radiography. Good radiography implies a host of things, ranging from optimal and consistent technical performance of all radiological equipment and accessories, to good radiographic technique and film processing. To achieve it, it is vital that radiographers keep their professional interest and pride alive. It would help very much if they could make their Department's radiogra-

## **APOLOGIES FROM THE EDITORIAL BOARD**

The Editorial Board would like to apologise to our readers/and advertisers for the late publication of the present issue of the Newsletter.

Due to unforeseen circumstances, the Editorial Board has to change to a new printer. We assure our readers that under the new arrangement the Newsletter will be produced regularly. Due to shortage of time this issue is limited in size. The next issue will contain all the regular features of the SMA Newsletter.

The Editorial Board will like our readers to write in their views and contribute articles which they think will be of interest to our readers.

phic problems their own, even though the primary responsibility for equipment performance, etc., of course, rests with the Department itself.

The inculcation of a good professional attitude is something that, I feel, deserves the serious attention of radiography schools, radiological departments and professional societies. It should start with young pliable minds in radiography schools and be ongoing. Once a student has learned to feel proud of his work, I know we have a good radiographer for life—one who will not need to 'repeat' (much)!

The use of automatic density control devices is pertinent to the problem. There is no doubt that it will reduce 'repeats', especially in situations where rapid work is done, such as mass miniature

film surveys, the serial changer, cine - photofluography, and the like, and would appear to have a place in a large department with an uneven mix of radiographer staff—although many good radiographers will produce far better quality films on their own.

There is another useful measure to consider. The process of choosing the most appropriate radiological procedures for any particular clinical situation is still subject to much traditional thinking. The whole process, may thus advantageously be reviewed and revised, with further streamlining to leave out low-yield intermediate examination, in the light of new techniques and newer concepts.

There is one other point that I would like to mention before I close.

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postgraduate training and study. But is this assumption really true? Or is it a myth, an excuse to opt out for a less demanding lifestyle?

The problems of the working wife and mother are well known and have been much discussed, and they are essentially the same for women in all professions, and in all lines of work, and are in no way peculiar to women doctors. They are compounded in the initial years by the extra burden of stay-in night duties in hospital, of course, but this is a temporary factor, and usually no longer applies after the first hurdle is crossed in the road to specialisation. That women in the past were never in the forefront of their professions was in no way due to their not being able to succeed in their chosen careers, but more to the fact that they never realised that it was proper or even permissible for them to go out and compete with the men in their own right, having been taught otherwise all their lives!

## **Super - Women**

A glance back at the list I referred to previously does reveal that a little more than one third of the women specialists numbered there are single, and I can envisage that it may be held that in their climb to the top, they had to sacrifice what opportunities they may have had of having a family life. But what remains is still the fact that the majority of our women specialists are happily married, with no notable examples of delinquent children or broken marriages in their families, or nervous breakdowns in themselves! Do we infer then that they are a special breed, superwomen in fact, because they have managed to succeed both at home and at work? (Granted, a few of them might have secret weapons in the form of helpful mums and mums-in-law to babysit! —but so have a good number of other 'ordinary' women.)

## **Career - a secondary role.**

Special they are, but only in that they were motivated enough to work for advancement in their careers, and not because they are in any way giants in physical endurance or in intellect. For I hold that the basic reason underlying the scarcity of women specialists is simply because most women have never considered their careers of anything more than secondary importance. Even those who were brought up by parents with a fairly enlightened outlook, have over the years, subjected to the insidious influence of teachers, friends, relatives, and society at large, developed the belief, conscious or subconscious, that a woman's first aim and duty in life is to become a good wife and mother, and that a job and career, while all very admirable and diverting to have, was not really of much importance at all. The most progressive and emancipated of women still never consider their careers in any way the

same light as their male colleagues do. Money is seldom a consideration—the married women know that the responsibility of supporting the family lies ultimately with good old hubby; their incomes only provide the icing on the cake. And single women seldom have dependents to cater for. Furthermore no one will look askance at her for not having any driving ambition to add a string of degrees to the end of her name, to aspire to be a Professor or a Head of Department, or to make pots of money. It is little wonder therefore, that when faced with a decision between the comparative comfort of working regular hours tending to nonproblematic if boring coughs and colds, and the rigours, of tramping the hospital wards and burning the midnight oil in further studying and reading, most women ultimately think 'What's an M. Med (MRCP, MRCOG, or what-

ever) to me anyway?'

So, while fully acknowledging that the extra responsibilities of homemaking that are a woman's lot are a burden not to be made lightly of, it is difficult to dismiss the thought that the real reason behind the disinclination of women doctors to go for postgraduate specialisation and to choose what has been called a 'soft option' is not so much anything as simply a pure lack of motivation.

— L. G. C. —

*What's wrong with Mrs.?*

—Editor



## NEWS FROM THE SMA COUNCIL

### CONGRATULATIONS !

Dr. Kee Wei Heong  
Dr. Lee Chee Wan  
Dr. Ooi Koon Hean, Alex  
Dr. Michael Teo Yu Keng  
Dr. David Ting Kuok Leh  
Dr. Yeo Ker Chiang

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Dr. Gunasagran s/o Ramasamy  
Dr. Lim Kok Hoo  
Dr. Tan Kai Chah  
Dr. Veerapen Richard James

) Pt. 1 Fellowship Exam  
F R A C S

*Continued from Page 3.*

Cost-effective and cost-benefit studies now loom large in medical planning. They must inevitably assume an increasing role in the comparative evaluation of new radiological techniques. Unfortunately cost-benefit studies in Medicine tend to be controversial because of the subjective values that enter into them. Nevertheless they should prove useful and the

general cost-consciousness that regular studies of this type instils should help further to reduce health costs.

The complex problem of high health costs, as we have seen, has no ready solutions. The problem is a serious one. It calls for a thinking approach from all those who are involved in the delivery of health care, so that finite resources can be maximally utilised for the benefit of all.

### SMA ANNUAL DINNER

This year the Singapore Medical Association Annual Dinner will be held at the MANDARIN HOTEL NEW BALLROOM on Saturday April 19, 1980.

The Guest of Honour will be the Honorable Minister for Trade and Industry, Mr Goh Chok Tong.

The Dinner will consist of an eight course dinner, a Cultural/Fashion Show and Lucky Draw.

As the number of tables will be limited early bookings will be necessary to ensure a place on the night.

### HOSPITAL SCHEME FOR VISITING AND HONORARY CONSULTANTS

Recently, the Ministry of Health has revised the Scheme for the appointment of private specialists as Honorary or Visiting Consultants to the government hospitals.

The Visiting Consultants are given the option of —  
1 a remuneration of \$50.00 per hour; or  
2 the privilege of admitting his private patients to Class A ward of the government hospital.

The Singapore Medical Association has formed a Committee to look into this Scheme. The Committee members are:—

Dr Yeoh Kean Seng (Chairman) Prof Charles Ng  
Prof Chan Kim Yong Dr John Tambyah  
Dr Gwee Ah Leng Dr Tan Hooi Hwa  
Dr Mah Guan Kong Dr Yong Nen Khiong

Please write or contact any of the above members to let them know what you think of this Scheme.

The SMA Newsletter congratulates the Editorial Board of the Annals of the Academy of Medicine for the acceptance of its journal for listing in the Index Medicines on the Med-Line System.

Dr. Chok Ching Chay  
Dr. Khoo Beng Hock Michael  
Dr. Kong Kum Leng  
Dr. Lim Meng Eng  
Dr. Soh Cheow Beng  
Dr. Tay Soi Kheng  
Dr. Yeo Siam Yam

) M C G P (S'pore)

Dr. Gary Tan Siew Geok  
Dr. Peter Yeo Peng Boon

) M D

### SMA WELCOMES THE FOLLOWING NEW MEMBERS

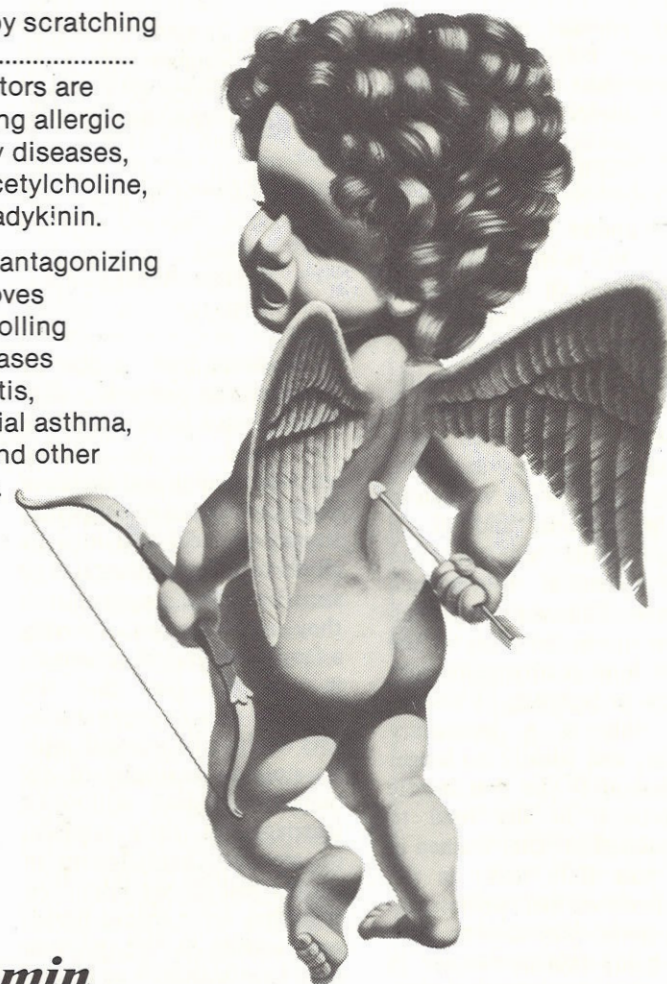
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Dr. Chiang Currie  
Dr. James Daniel Jesudoss  
Dr. Khatoon Zubeda (Mrs Said)  
Dr. Koh Lam Son  
Dr. Nair Sarala Devi  
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## LEISURE

by Mr. C. F. Tham

## On Choosing a High Fidelity Set-Up

The Editor has very kindly asked Dr Chia Kim Boon and I to write a few articles on "High Fidelity Sound Reproduction" that may be of interest to anyone who is interested in acquiring such a system for the first time.

Dr Chia has the means to test amplifier systems so I shall leave that part to him. My part should be to help a person with a budget to acquire a set at reasonable cost and build up a home classical record or cassette library from scratch. I have always regarded "High Fidelity Sound Production" as a means to a end. The end is the reproduction of classical music with, as Peter Walker of Acoustical Manufacturing Co Ltd, the manufacturer of the Quad Amplifier and electrostatic speaker puts it, "the closest approach to the original sound". Hence you can build your set over a period of years on a budget system to the level you want if you love classical music or simply buy a set and let it end there.

If you adopt the former system you have to keep your own counsel on what you actually hear from a piece of equipment and relate it to your budget and never be carried away by the comments, often untutored, of HiFi buffs who will bring you back to their homes to listen to the most expensive, fantastic and impractical of sets that undoubtedly are better than your own. But consider what price they have paid for these. Sometimes you may even hear this statement, "This set sounds even better than the real orchestra". The sound of recorded music can never be like the real orchestra. The best is the closest approach to the original sound.

This is greatly influenced by your listening room. A bare concrete room will accentuate the high frequencies even from the most expensive of sets. An L-shaped room is also a bad one. It creates the problem of balance between the two sides and the different frequency bands. The best room is a rectangular one. It will even be better, though unnecessary, if it is lined with acoustical tiles. The average room in this country has a parquet floor that can be carpeted and curtained tastefully and has a few pieces of soft furniture. I think the

sound characteristics of the listening room is the most important factor in the reproduction of high quality sound

### Equaliser

For the more fortunate the sound characteristics of the room can be compensated for by an equaliser. This piece of equipment is actually a tone control for each audible frequency band. The supplier has special equipment that can be used to smoothen the whole audible spectrum with the equaliser from your set. It also compensates for the characteristics of the set. Once the tone controls are set they must not be changed until you buy another set, change the furnishing of your room or change the room, in which case the equalisation has to be made all over again. The equaliser has to have very low distortion that will be added into the total distortion of the system and so a good equaliser must be expensive. An equaliser with high distortion is much worse than having none. If you can afford a really high quality equaliser as a complement to an equally high quality set then the music produced in your home cannot really be made to sound better.

Most of us are not this fortunate. You can get very good sound by the trial and error method with adjustment of your tone controls of your preamplifier and your speaker system.

The music reproduced should be smooth and mellow, never harsh or it fatigues you after prolonged listening. The violin sound should never be steely. Some enthusiasts think that steely sibilant sound means good high frequency reproduction. Nothing is further from the truth. True string sound is smooth, mellow and gutty. Try to attain this sort of sound for reproduction of the string section of the orchestra. If the set cannot reproduce the string section in this manner, it is not good no matter how much it costs.

The woodwind section must again sound smooth, mellow and limpid. This is a very beautiful section of the orchestra and the reproduced sound must reflect this character and never be hard.

Strangely enough the brass section of the orchestra is easy to reproduce. It sounds brassy. A good set will add

smoothness to the brassy sound. It must never cause listening fatigue. Poor reproduction fatigues the listener easily and one sign of this is a certain small anxiety on the part of the listener as the expected brass passage in the music approaches.

The percussion section of the orchestra should be sharp short thuds or rattles. The struck bass drum should not boom. In the same way the low strings should also not boom. The reproduction of low frequencies is more difficult than most of us realise.

The human voice should not sound boxed in. It should sound as though the singer or actor is on stage in front of the listener when he shuts his

eyes. The better sets will clearly bring out the consonants of "t" as in "but" (sounded) and "d" as in "world" (sounded). You can also hear the singer taking his breath with the better sets.

The clearly articulated words sung by a good choir in a good recording should be heard without difficulty as in the "Halleluyah Chorus" of Handel's Messiah in the Sir Thomas Beecham recording with the Royal Philharmonic Orchestra (RCA). A large choir should also sound massive.

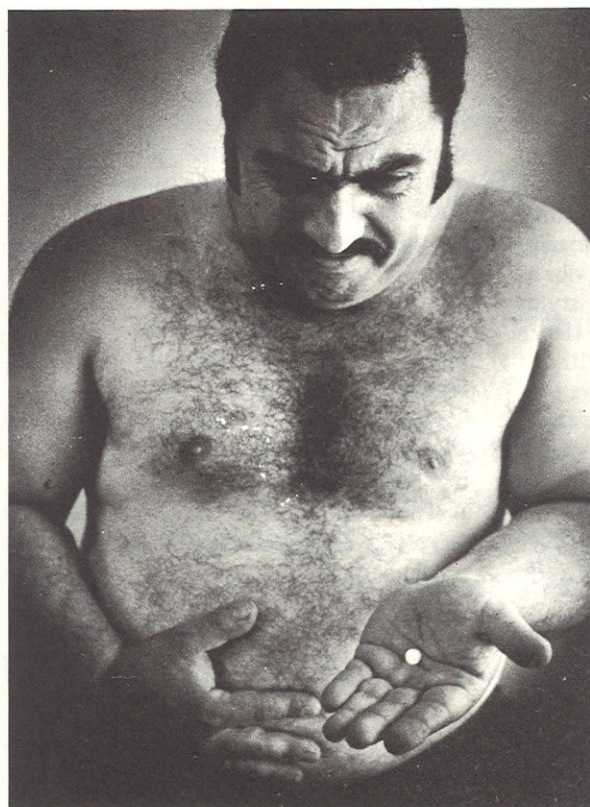
The final test of a good set is that after you have listened to several of your favourite pieces you should never get tired.

### The Amplifier & Preamplifier

The heart of the system is the amplifier and its control unit, the preamplifier. When the preamplifier is incorporated into the amplifier it is called an integrated or control amplifier. A set that has a separate amplifier and preamplifier is larger, has more space for correction circuits, is more versatile and hence more expensive.

HiFi buffs talk about distortion in the reproduced sound that may be harmonic, intermodulation, cross-over or transient. The last two are manifested in a cold unmusical sound, that is characteristic of most transistor circuits.

*Continued on Page 6*



## Just one small tablet for stomach-aches

### Indications

Relief of such subjective symptoms as gastric pain, abdominal discomfort, nausea, vomiting, belching, tenesmus and heart-burn accompanied with acute and chronic gastritis, gastroduodenal ulcer, and other gastrointestinal disorders.

### Dosage

One to 2 tablets 3 to 4 times daily, 15 minutes before meal and at bed time.

**Strocain**  
for stomach-aches

Eisai Co., Ltd. TOKYO JAPAN

Available in Hongkong, Taiwan, Thailand, Malaysia, Singapore, Indonesia, Bangladesh, Middle East, Africa, Central and South America, etc. Information and samples are available upon your request.



## LEISURE

Mr. C F Tham

The old valve circuits did not have this form of distortion and hence the reproduced sound is warm and musical.

Harmonic and intermodulation distortion is found in all amplifiers. Intermodulation distortion is characterised by harshness or shrillness and is unpleasant to the ear. A set with low harmonic distortion produces high quality tones.

The average human ear can tolerate 3% harmonic and 1% intermodulation distortion. The best of today's set have harmonic and intermodulation distortion of as low as 0.002%. These are expensive but they are very good.

The question, "What is a preamplifier?" is often asked. It is a tone control unit that attempts quite successfully, at the correction of the the recording characteristics of gramophone records, tapes, room and amplifier.

In the production of a gramophone record the grooves in the disc are cut with the vibrating stylus of the cutting head. The velocity of the vibrations is directly proportional to the recording signal voltage. So if the recording signal voltage is constant, the velocity of the vibrations of the cutting stylus is also constant. Hence the amplitude or width of the recorded groove in the disc will be inversely proportional to the signal frequency. In other words a low frequency of say 50 Hz is broader in the record groove than a high frequency of say 14 KHz.

This immediately poses these problems.

If a certain sort of amplitude (width in the groove in the record) at high frequencies which are short waves is chosen to give acceptable musical sound without record surface noise becoming obtrusive to the music lover (in HiFi language "acceptable signal-to-noise ratio"), then the amplitude at low frequencies which are long waves, will be excessive, that is too broad and produce an unbearable form of distortion.

Too much space will be needed between adjacent rings of the groove to ensure that one ring will not break into the next. This will make the amount of music recorded too small to be commercially viable. So some restriction

of the amplifier at low frequencies is necessary. Hence bass signal voltages are attenuated before being transferred to the vibrating recording stylus. When the maximum width of the groove is restricted to some limit, the recording is called a "constant amplitude" one. This is for the low frequencies.

Coming to the high frequencies which are shorter waves, the recorded width will be narrower. The noise from the disc material picked up by the play back stylus can be as high as the music and so destroy the pleasure for the music lover who is listening to this sort of disc. So the high frequencies (or treble) of the music are boosted up before being transferred to the vibrating recording stylus. In this way when the boosted treble is reproduced at normal loudness the noise from the record material is considerably decreased.

Hence a gramophone record is not recorded simply as the music is picked up from the microphones. The groove in a record has a pattern called a "recording characteristic".

The recording characteristic is divided into 3 sections indicating the differences of recording voltage with each particular band of frequencies.

- 1 The bass section shows voltage attenuation. The standard adopted in 1954 for this section is from 30 Hz to 599 Hz.
- 2 The middle section in which the recorded amplitudes (recorded widths) are more or less the same, is called the "constant velocity" section. The standard for this section is from 500 Hz to 2500 Hz.
- 3 The treble section (showing voltage boosting) where the recorded musical amplitudes are magnified or pre-emphasised. The standard for this section is from 2500 Hz to about 18000 Hz.

This is the RIAA recording characteristic which is (Recording Industries' Association of America) the standard adopted today.

The first section of the preamplifier provides a resistance-capacitance circuit to compensate in the opposite direction for this recording characteristic.

To further reduce surface noise further pre-emphasis of the treble range of frequencies is similarly obtained by the Dolby System in the master tape before the music is transferred to the master stamping disc. Today record surface noise is minimal.

The music in pre-recorded cassette tape is recorded in a similar manner and similarly reproduced in the first or second transistor or valve of the preamplifier.

A word of advice to would-be purchasers. Any set will break down. So always make certain that the firm from which you purchase set can service it to your own, and not the firm's satisfaction. Many HiFi buffs have wasted a lot of money because of this.

For those who only want pop music any complete system offered by the more reliable firms like Teac, Sony, Pioneer, Technics, etc. should be satisfactory. For those who wish to build a permanent and very good system over a period of years there are these excellent amplifiers, the HH S500D, the large Accuphase, the Phase Linear 400 and these preamplifiers, the Paragon, Mark Levinson II, Phase Linear 3000. A greatly underestimated but excellent amplifier and pre-amplifier for its low price is the Quad 404 and its separate preamplifier.

#### The Pick-up or Cartridge, tonearm and the turntable

Most pick-ups or cartridges of today are of high quality. Of course some are better than others but really not by that much as some would claim. The sensible thing to do, if you are budgeting, is to choose a mellow sounding pick-up that is robust and does not need to be changed every eight months. Such a pick-up is the "Shure V15 type IV".

Pickups are of two types, the piezo electric and the magnetic. The first does not reproduce music of high enough quality. The pick-ups sold today are of the second types. Of these there are two subtypes, the better moving coil subtype and the almost as good varireluctance type. The moving coil pickup is not durable and is only for the rich. Its life span is about eight months in the tropics before it produces distorted sound. This is due to the fact that the stylus (the diamond "needle") and cantilever is fixed permanently to two coils and suspended in the middle of a very strong magnetic field from a very powerful rather heavy magnet by a plastic or soft rubber

suspension. With the passage of time in the tropics this suspension hardens and distortion sets in.

Another disadvantage is its playing weight which is at two or more grams. At this weight record wear is high.

The varireluctance type consists of either a moving magnet or moving iron connected by the cantilever to the stylus. This magnet or iron with the stylus can be made very light. The movement of the tiny magnet or iron makes and breaks a magnetic field in which two coils wound round small magnets are situated and this produces a varying current in the coils. Since the stylus is not permanently fixed to the coils it can be changed. The suspension is not a perishable material. Such a pick-up will last several years.

The turntable that you choose must have these characteristics. Steady and accurate speed are absolute requirements. Variations in speed will produce a most horrible distortion called "wow".

If the speed is not accurate the pitch of the reproduced music will be different.

Hence it is important that the turntable should have both a powerful vibrationless motor and a platter with a heavy stem with astroscope to adjust the speed.

The turntable must not produce a hum from its motor. It is an extremely irritating sound when it is superimposed of the reproduced music.

The platter of the turntable should not be made of iron that will attract the large magnet of a moving coil pick-up and upset the chosen weight of the pick-up.

The motor and electronics must not break down.

Any Japanese turntable that is reasonably priced and usually comes with the pick-up arm is an acceptable one. I have not used one for a reasonable length of time to discuss its durability. But I understand that some are very good like the Technics SP 10.

The excellent turntables are these.

- 1 Lynn Sondek (Far too expensive for its simplicity)
- 2 Technics SP 10
- 3 STD 305D
- 4 Thoren TD 125 Mark II

The pick-up arm should have a very low resonance. If the arm resonance is at audio-frequency then the reproduction of low frequencies will be poor and also the excessive arm vibration at resonance frequency will wreck the record groove on which it is

playing.

An excellent pickup arm is the SME series IIIS arm which is not expensive. It is very durable too.

#### Cassette Tape & Dec

Prerecorded cassette tapes are much easier to store than discs. It also does not have the problem of the bad surface noise of stored gramophone records.

But they have the problem of musical blanks for brief periods called "drop outs" after they have been stored for some time. There is also the problem of fungal growth.

The quality of recording tape is dependent on its metal particles. Two of the most important qualities of the particles are its saturation induction and coercivity. Saturation induction is an indication of how much a tape can be magnetised and tells something about how powerfully the music can be recorded before unacceptable distortion sets in. So the higher the saturation induction the louder is the music from the tape and hence the higher the signal-to-noise ratio.

The coercivity indicates how difficult it is to record something onto the tape. But once it is recorded in, it will stay there. In other words once the music is recorded it is the high coercivity that keeps the high frequencies on the tape. Everyone who uses cassette tape knows that a pre-recorded tape loses its high frequencies and becomes more bassy after some time. This loss of high frequencies means that the tape has a low coercivity. When choosing a tape always choose one with high saturation induction and coercivity. The best tapes today are these.

- 1 TDK SA
- 2 Maxwell UDXL II
- 3 Sony Ferrichrome

Soon there will be a metallic tape "Metafine" from 3M of USA with double the saturation induction and coercivity of TDK SA

The cassette deck produces more problems than a turntable. Tape oxide often sticks onto the recording or playback head. This has to be cleaned off with absolute alcohol. Sometimes even this cannot remove the dirt and it has to be brought to the repair shop for cleaning.

There is the problem of keeping the recording head in proper alignment with the tape to produce the whole audio frequency spectrum properly. Recording and

Continued on Page 7



## BOOK REVIEW



### YOU AND YOUR CATARACT

BY: S.M.Lim & C.Y.Khoo  
Published by Times Books  
International pages, \$6.50c

This book explains in simple terms what cataract is to a layman. It attempts to explain away his fears of the disease. It tells him his chance of getting his eyesight restored, when to seek help, what he can expect from his family physician and the eye-surgeon, the timing of the operation, what to expect from surgery, the after care and what glasses or lens he should wear after the cataract has been removed.

The book is in large print, anticipating those readers who have failing eyesight.

I am not very happy about the placing of the three sections of the book. I would suggest that the lay-reader should read the last section

"Cataract and its effects" first, followed by the first section "Questions and Answers". The mid - section "Sight, Optics and Nervous Mechanism" should be left to the last.

For those (rare souls) who need to know in depth the various aspects of cataract, a comprehensive bibliography is presented at the end of the book.

A GP should glance through the book to best explain the ailment to his patients.

S. L. Lim and C. Y. Khoo should be congratulated in producing this eye-ful and informative book. It will certainly go a long way to meet the needs of patients to know.

K.W. Si-Hoe

### STABLEMATE

AH WUN, He says...

man who take new bride,  
him called groom,  
must look after old nag.



### SIZZLING SITUATION

AH WUN, He says...

more clothes girl take off,  
more hot she become.

Continued from Page 6

playback heads wear out fairly rapidly and will need to be changed.

The next problem is the maintenance of accurate speed. The two or three motor models are the best.

Finally there is failure of the electronic logic control if it is a sophisticated model.

There are many good cassette decks in the market, amongst the best are the Teac, Nakamichi, Tandberg, Akai and Sony. Teac produces an excellent range to suit every pocket. The best in the Teac range is the C1 or C3.

#### Loud Speaker System

Finally there is the loud-speaker system. Choose loud-speakers with the old "Alnico" or "Alcomax" magnets. These produce better sound than those with the present day ceramic magnets.

The quality of a conventional loudspeaker depends on its magnet. A powerful magnet always produces the better loudspeaker. This means that it is also more costly.

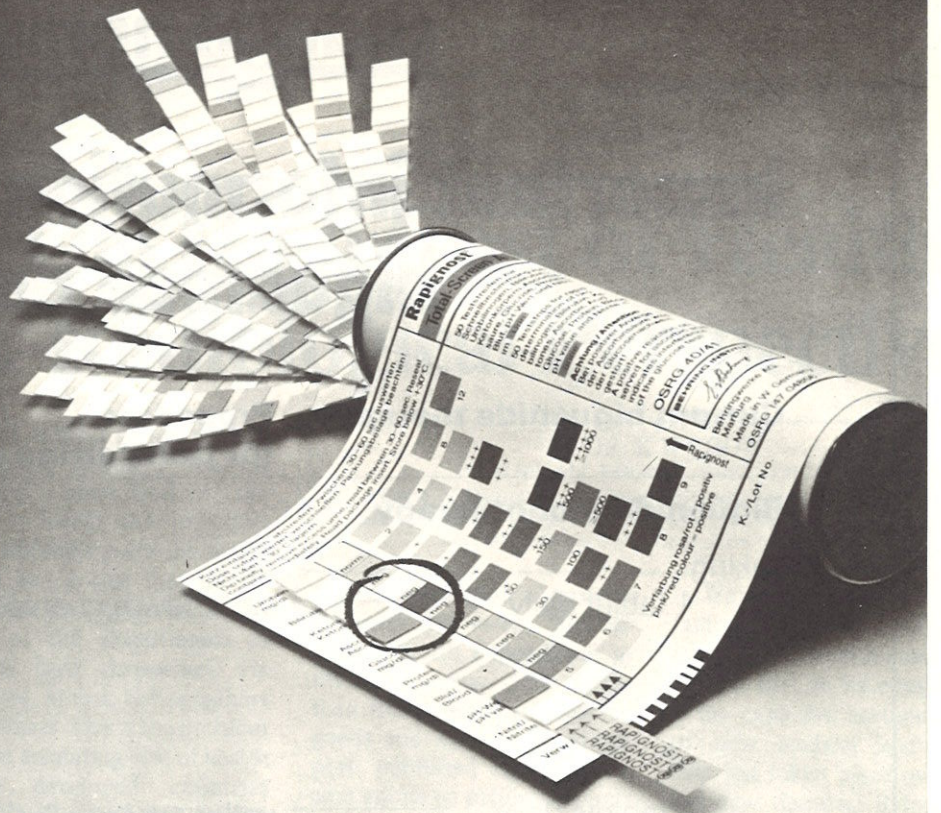
Do not be influenced by published figures. Go to the shop and compare the range that you can afford. Choose the mellow and smooth sounding loudspeaker system. The screechy ones sound worse in your home because the listening room of the shop is furnished in such a way to produce sound that an average home cannot match.

Finally do not forget the Quad electrostatic loudspeaker system. It is a really excellent one.

Now that you have read all this please fix a budget and just get what you want within its limit. Never compare your own set with your rich friends. It will only make you unhappy.

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Society for the protection of their professional interests,  
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sources, as well as from the Society's Head Office.

Further information from  
The Executive Secretary, Singapore Medical Association

or

Dr. J. Leahy Taylor, MB, BS, MRCGP, DMJ, The Secretary,  
Medical Protection Society,  
50, Hallam Street, London W1.



## Sometimes it's prudent to change horses in midstream

### Important information for transferring biguanide patients to «Glutril»

Current biguanide therapy	Procedure for transferring to «Glutril»	«Glutril» monotherapy
<b>Biguanide monotherapy</b>		
Taking:		
1 tablet daily	—————> withdraw biguanide	½ tablet daily initially. This may suffice. If not, increase at five-day intervals to a maximum of 3 tablets daily.
2 tablets daily	—————> withdraw biguanide	1 tablet daily initially; then as above.
3 tablets daily	—————> withdraw biguanide	2 tablets daily initially; then as above.
<b>Biguanide combination therapy</b>		
Biguanide plus «Glutril»	—————> withdraw biguanide	continue with existing dose of «Glutril». If neces- sary, increase dose of «Glutril» as mentioned above.
Biguanide plus a sulfonylurea other than «Glutril»	—————> withdraw existant combination therapy	start with 1 tablet «Glutril» daily, increasing when necessary as above.

## It's as simple as that!

#### «Glutril» Oral antidiabetic agent

##### Indication

Diabetes mellitus: «Glutril» is indicated for the treatment of maturity-onset diabetes that does not require insulin therapy and that is not adequately controllable by dietary measures alone.

##### Dosage

The dosage of «Glutril» should be adapted by the doctor to the metabolic requirements of the individual patient. The following dosage schemes are presented as general guidelines:

##### Initial therapy

(This scheme is intended for

patients for whom diet alone is not sufficient to bring about appropriate control as well as for those who have not previously been treated with oral antidiabetic drugs) Treatment should begin with ½ tablet daily. This dosage may be adequate but, in most patients, it will have to be increased to 1-2 tablets (to be taken with breakfast). If a higher dosage is needed, 2 tablets should be given in the morning and the remainder of the dose in the evening.

In general, the maximal daily dosage of «Glutril» is 3 tablets since higher doses usually do not lead to better results.

##### Transfer

(This scheme is indicated for patients previously treated with other oral antidiabetic drugs)

If a patient is transferred to «Glutril», the dosage should be based on that of the drug previously used: e.g. 25 mg of «Glutril» are equivalent to approximately 1,000 mg tolbutamide, 250 mg chlorpropamide or 5 mg glibenclamide.

##### NB

Transfer from insulin to «Glutril» can be tried in obese patients with maturity-onset diabetes.

If this is done, the dosage for «Glutril» must be established

by appropriate controls of blood sugar.

##### Contraindications

«Glutril» is contraindicated in severe renal insufficiency and in patients with known intolerance to sulfonylureas, in diabetic coma and precoma, in juvenile diabetes (including prophylaxis in mild non-ketotic forms), in any patient with ketoacidosis, in pregnancy.

For further information, please refer to the package insert.

«Glutril» is a Trade Mark



**F. Hoffmann-La Roche & Co. Limited Company, Basle, Switzerland**