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The Madras
Medical College Magazine

Vol. XXXV

APRIL 1958

No. 1

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Editorial

Old Father Time has slowly nibbled away another year and has imperceptibly commenced to do so on the new. He watches with impassive eyes, the raptures and joys, the miseries and sorrows of humanity, and wields his scythe impartially, cutting down both the Innocent and the Sinner. He has seen creeds and civilizations rise and fall; men who were the colossi of their age, whose deeds are now but a legend. The dawn of this Atomic Era will surely awaken him from his serene complacency, for humanity totters unsteadily on the edge of the fathomless abyss! Will Man realise that all human beings possess as their inalienable birth right the prerogative to live happily on this Earth, free from hunger, poverty and despair! Will he understand that the tenets "Liberty, Fraternity, and Equality are not mere empty words? And wisely utilise the infinite and inexhaustible forces that he now commands for the benefit and amelioration of Mankind, or in his obsession and craving for power divert these very same energies to realise his ambitions, not heeding the dire consequences that will be the result of his mania - wreaking havoc and destruction, turning this green Earth into another dead planet. Had Father Time heard the uttering of that ancient Egyptian prophecy? "When Man learns what moves the stars, the Sphinx will laugh and all lifelife will come to an end" - and with a leaden heart awaits the outcome of Man's folly!

The World Health Organisation will on this year's World Health Day - seventh April - celebrate the 10th Anniversary of its foundation. The eternal gratitude of those, to whom it brought relief and succour from the pestilences and diseases that ravage humanity, is a silent tribute to those selfless men and women who have dedicated their lives to relieve the sufferings of their fellowmen, irrespective of Religion and Nationality! Our best wishes to the W. H. O.

We are glad to note the buildings of the new hostel are rising rapidly and will be ready for occupation by the end of the year. A 123 YEAR OLD DREAM IS AT LAST A REALITY!

The Royal Society of Edinburg has elected our beloved Dr. R. V. Rajam M. B., M. S., F. R. C. P., as a Fellow of the Society. No greater tribute could be paid to a man by his fellow scientists that the award of this signal honour, for which many strive but few achieve! It is not only a tribute to him, but also to the Madras Medical College of which he was successively a student, a professor, a principal and the first Dean of the

April 1958

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General Hospital, and now as Director of the Institute of Venerology he is still closely associated with us. Our respectful congratulations to him.

We thank our predecessors Mr. M. G. Kini and Mr. N. S. Ramamoorthy for the legacy they have bestowed upon us at the end of their term.

We are very grateful to our contributors, the members of the staff and students who were kind enough to take the care and trouble in writing articles for the magazine, and without whose generous help this issue would not have been possible.

In conclusion, we would like to extend our grateful thanks to Dr. R. G. Krishnan F.R.C.S., the President of the Magazine Committee, to Dr. M. G. Prabhu M.D., our vice-president who have counselled and guided us in times of difficulty, and to Dr. Al. Annamalai, M.B., M.R.C.P., D.T.M. & H., who strengthened our financial position by securing numerous advertisements and for extending his help and advice at all times.



General Editor

Secretary Speaks

Along with the secretary's post an additional responsibility, that of the treasurer has been assigned to me—that of managing the finances of the Magazine Committee. With great effort and the cooperation of the medical firms we were able to maintain our high standards. We want to improve and stabilise the magazine, but financial difficulties stand in the way.

My apologies to all those who have not received the previous issue of the magazine. Circumstances over which I had no control led to this unfortunate predicament. Due to the rather late taking over charge of the magazine by the present editors in January 1958 instead of September 1957, this issue has been delayed.

I am very grateful to the staff and students who responded to my appeal by contributing articles to the magazine and hope they will extend their cooperation for all future issues.

Good bye till we meet again next time.

Dr. AL. ANNAMALAI, M.B., M.R.C.P., D.T.M. & H.
Secretary & Treasurer
The Madras Medical College Magazine Committee.

Morituri Salutanum

How beautiful is childhood! how bright it gleams
With its illusions, aspirations, dreams!
Book of beginnings, story without end,
Each maid a heroine, and each man a friend!
All possibilities are in its hands,
No danger daunts it, and no foe withstands;
In its sublime audacity of faith,
“Be thou removed,”! it to the mountain saith,
And with ambitious feet, secure and proud,
Ascends the ladder, leaning on the cloud.

LONGFELLOW.



News and Notes

We are proud to announce that Dr. Ninan Verghese, M. B. B. S., M. Sc., has been elected an Associate of the Royal Institute of Chemistry, (London), our congrautlations.

We congratulate Dr. S. T. Achar, M. D., F. R. C. P., on his new appointment as Director of the all India Institute of Paediatrics,

Our felicitations to Dr. B. Ramamoorthy, M.S., F.R.C.S., F.I.C.S., Reader, Neurosurgery on his election as President, Indian Society of Neurologists. Under his able guidance the neuro-surgical unit has expanded rapidly and has crystallised into an independant department

Dr. Ratnakannan, M.D., Professor of Bacteriology and Dr. Mrs. Abraham, M. D. Superintendent, Women & children's Hospital, have proceeded to the United Kingdom and Continent on a study tour. We eagerly await their return to benefit from their experiences abroad.

We welcome Dr. Govindarajan, M.D., Director of King Institute as acting Professor of Bacteriology in the absence of Dr. Ratnakannan. In addition to being an able administrator he is an admirable teacher.

We congratulate Dr. Sankaran, M.S. on his appointment as lecturer in Surgery at the Stanley Medical College. We wish him all the best.

Our sincere compliments to Dr. Miss Meenakshi, M.D., and Dr. Gopalakrishnan, M.B.B.S., on their appointment as lecturers in Medicine and Jurisprudence respectively at Madura Medical College.

Dr. C. J. Aiya Nadar, M.B.B.S., D.C.M. (Bom.) tutor in Paediatrics has gone to the Stanley Medical College as lecturer in Paediatrics. Our good wishes to him.

We welcome Dr. A. T. John, M.D., as reader in paediatrics. He is an experienced paediatrician and he will surely be an asset to the department of Paediatrics.

We welcome Dr. A. Umapathy, M.S., as surgical registrar. He is interested in students and always ready to help and guide them.

We welcome Dr. K. V. Thiruvengadam, M.D., as medical registrar—A Gentleman !

* * *

Coming to the activities of the College, the Medical Relief Wing conducted the third medical exhibition in January, with great success. There were streams of enthusiastic people including some distinguished foreign visitors who had come to attend the forty-fifth session of the Indian Science Congress. It is proposed to establish a new centre at Thirumudivakkam in addition to one at Pallikarani with the proceeds of the Exhibition.



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A quadrangular athletic meet between the four medical Colleges was organised by the Stanley Medical College Athletic Association on 27th & 28th January. There were many participants from our college and we were the runners up for the championship, which was won by the Christian Medical College, Vellore.

The Annual sports was conducted on 20th February. Sri. M. A. Manickavelu, Minister for Public Health presiding, Smt. Lourdammal Simon, Minister for Local Administration gave away the prizes.

Mr. V. T. Balaraman and Mr. Ramakrishna Patnaick were elected as president and general secretary of the M.M.C. Association in February. Our congratulations and best wishes.

The valedictory address of the above association was delivered by Sri M. Ruthnaswamy, M.A., (Cantab) Bar-at-Law, on 25th February. His eloquent speech on the language problem was greatly appreciated by the audience. Srimathi R. G. Krishnam distributed the prizes to the best orators of Dr. C. K. Prasada Rao's Rolling Shield Oratorical Competition. There was a short variety entertainment.

During this term we were fortunate to have many distinguished foreign visitors to our hospital and college.

They were Dr. Miller, F.R.C.S., President, Royal Australian College of Surgeons and Professor of Neuro-surgery, University of Sidney.

Dr. Pappo, M.D. Chief Surgeon, Surgical Section. Yugoslavian Military Academy and Surgical consultant to the Yugoslavian Army-A skillful surgeon having been trained under the late Professor Yudin (Russia)-the famous specialist in oesophagial surgery.

Dr. Arnari, M.D., head of the Plastic unit and surgeon in Yugoslavia. He is a very good sportsman being a good swimmer and a yachtsman. He represented his country in the Italian Regatta and brought honour to it by winning twice.

Drs. Miller, Pappo and Arnari during their stay performed a number of operations demonstrating some recent advanced techniques in their respective specialities.

Professor Otto Jirovec, Parasitologist, Protozoological Laboratory of the Czechoslovakian Academy of Science, and Institute for Epidemiology and Microbiology, Prague, Czechoslovakia. We thank him sincerely for having given us an article on the specificity of the intradermal Toxoplasmin' test, for our magazine.

T. Kalyanasundaram

ASSOCIATE EDITOR

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R. V. RAJAM, M.S., F.R.C.P., F.R.S. (Edin)
Director, Institute of Venereology, Madras

“The Natural Course of Chronic Disease”

A disturbing feature of medicine in the current situation is the multiplicity of drugs available for the cure or relief of diseases. Forty years ago, there were no antibiotics, steroid hormones, antihistamines, hypotensives, tranquilisers, relaxants. The present period is called the antibiotic era, soon to be followed by the atomic era. In spite of the spectacular therapeutic advances wrought by the advent of the antibiotics, vociferously publicised in lay and medical press and by a never ending plethora of advertisements and high pressure salesmanship there are shadows discernible in the current use of the antibiotics. We are living in an era of promiscuous therapeutics in which treatment precedes diagnosis. Antibiotics are prescribed, widely, indiscriminately and thoughtlessly to all and sundry conditions for many of which there are no indications. The erstwhile innocuous penicillin has become the most potent sensitizer with often fatal reactions. I have it on good authority that Streptomycin is being prescribed by certain physicians for every patient who is found to be Mantoux positive.

Apart from the allergic and nonallergic complications of antibiotic therapy, there is increasing evidence of a subtle change in the pattern of many diseases, and the occurrence of new diseases syndromes with often times serious metabolic, ecological and immunological alterations in the human organism. The latter have been aptly termed iatrogenic diseases. A few examples may be given. Systemic fatal moniliasis, and acute fulminating staphylococcal enteritis following antibiotic therapy have been reported. Serious

staphylococcal infections of the throat, skin and bones due to the emergence of antibiotic resistant organisms have been increasingly encountered both in hospital and private practice. Tuberculosis till recently was considered a killing disease; with the advent of antibiotics while the mortality from the disease has registered a significant decline, the morbidity figures do not show any such desirable result. According to some thoughtful physicians, antibiotics may merely convert a killing disease into a crippling one. The problems of antibiotic resistance and antibiotic dependence are looming ahead to confound the physicians and microbiologists. During the past decade in America and Western Europe, symptomatic syphilis has shown a rapid decline while latent syphilis is showing an upward trend. Is it a case of syphilis going underground beneath the threshold of clinical recognition due to the widespread use of Penicillin? Time and further observations alone can tell. In our country, although organised efforts at syphilis control are lacking, there is some evidence that the hospital admissions for early symptomatic syphilis have registered a decline during the past few years. This decline may be due to two causes, (a) Increasing use of penicillin among the population for conditions other than syphilis. Such ‘happenstance’ treatment may prevent or abort an unrecognised syphilitic infection. (b) The reduction in the hospital admissions for early syphilis may be due to an increasing number of patients with the disease seeking treatment from private physicians.

According to Magnuson another factor of importance in bringing penicillin by chance

to the unrecognised syphilitic is gonorrhoea. In Western countries it is stated that the incidence of gonorrhoea has not shown any significant decline and this may be a factor in lowering the syphilis attack rate, through administration of penicillin for gonorrhoea to a large number of persons of these socio-economic groups of the population where syphilis is most rampant. Schamberg in a thoughtful speculative article poses and answers the question 'Can the Treponeme stage a comeback?' She offers the possible explanation for the failure of gonorrhoea to decrease comparable to the decline of syphilis in America and other Western Countries, to the shorter incubation period of gonorrhoea in men. If the incubation period of syphilis is taken as 2 months, and that of gonorrhoea as 4 days and if it is assumed that the average person in the United States received one injection of penicillin per year for a disease other than venereal, then the chance of receiving penicillin after infection and before diagnosis would be 1 in 6 in syphilis and 1 in 91 for Gonorrhoea and thus a coincidental 'happencance' injection of penicillin is more likely to abort syphilis than Gonorrhoea. Side by side with a reduction in the overall attack rate of syphilis among the population after the advent of penicillin, there has been an increase in reinfections both symptomatic and asymptomatic. For thousands of years, the Treponeme has been living in a hostile unfriendly symbiosis with the human host, but now with penicillin therapy there appears to be a change in this relationship. The virulent invasive powers of the treponeme seems to have suffered a set back as witnessed in the low incidence of asymptomatic neuraxis involvement in untreated early syphilis. The French workers have brought forward some evidence from the study of syphilis in experimental animals, that penicillin may ultimately dethrone syphilis from its systemic status to one of purely local lymphatic involvement, provided the organism does not develop resistance to penicillin in the succeeding years.

Whether penicillin will continue to be used as widely in the future as in the past, is in grave doubt, because of the increasing incidence of serious and often fatal sensitivity reactions and the development of resistance by a number of bacteria. But in the therapy of syphilis, penicillin still holds the field and the newer antibiotics both of the broad spectrum variety and the not-so-broad spectrum variety, have not established their equality with penicillin in therapeutic effectiveness.

The unitary concept is gaining ground that syphilis is only one facet of a widespread ancient disease-Treponematosi. Treponematosi may be regarded as a signal example in the realm of communicable diseases where the host-parasite relationship has changed with the changing environmental and socio-economic conditions of human population. The same disease is called Yaws when it is encountered among the harijan populations of Avanashi Taluq, endemic childhood syphilis or Bejel among the slum populations of urban Madras, venereal sporadic syphilis among the adults of either sex in the cities and seaports and pilgrim centres. The question may be posed "What does one know of Treponematosi who only knows syphilis?"

In the current changing spectrum of disease pattern, it may be worthwhile both from an academic and philosophical points of view, to look back and see what has happened to a chronic disease when it was left to pursue its natural course. I have chosen syphilis as an example of chronic disease for three reasons:

1. The most obvious reason is my familiarity with the disease during the greater part of my professional career.
2. Alone among chronic diseases of an infectious character syphilis is an example of exquisite chronicity extending from womb to tomb.
3. There is nowhere in the World's history any record, either past or present, of any large groups of population suffering from

a chronic disease and remaining deliberately untreated. There is only one exception and that is syphilis.

Among chronic diseases of a communicable nature, syphilis through the ages has always evoked interest and fascination among physicians, scientists, poets, dramatists and social historians unequalled by any other disease although in the current situation, the interest on the subject is 'at an all time low' in the expressive American phraseology.

It has always been the case in the history of medicine, that when a cure has been found for a disease, the intellectual and scientific curiosity diminishes or vanishes, although there may be still unsolved problems connected with the disease. Syphilis is in that predicament now. Just at this psychological period a monumental and never-to-be-repeated epidemiological retrospective study of the natural course of untreated syphilis has appeared in a monograph of some 500 pages. The author of this study is one Dr. Trygve Gjestland hailing from Oslo, Norway. Norway along with Sweden and Denmark were the pioneers in social and health legislation even as early as the last quarter of the 19th century. The public health laws of Norway required compulsory notification and hospitalisation of patients suffering from communicable diseases even at a period when the organismal cause of these diseases was undiscovered. In Norway every patient hospitalised for early syphilis was required to sign a legal document which read as follows:

1. That I am suffering from syphilis.
2. That my illness is infectious at least for 4 or 5 years.
3. That it is under penalty of the law that I expose any other person to infection.

The administrative machinery was so highly organised in Norway that vital statistics, hospital records, health department records, marriage register, register of indigents, death certificates, autopsy records, population regis-

ters were all maintained in a highly efficient manner.

With this background information about the country, I wish to take the audience back sixty years in point of time and ask you to visualise an internationally reputed Professor of Dermato Venereology at the University of Oslo. He was Professor Caesar Boeck who practised a sort of therapeutic nihilism. He refused to treat syphilis with the only remedy then available, that is Mercury in his ward, under the sincere conviction that Mercury far from curing syphilis generally interfered with the patient's own defence mechanism. From January 1891 to December 1910, approximately 2000 patients with Primary and Secondary Syphilis were admitted into Boeck's wards and hospitalised for varying periods without treatment until the clinical signs and symptoms had completely disappeared. The only concession to therapy which Boeck permitted was the administration of the non-specific Pot. Iodide in some cases. At that period of time, the diagnosis of syphilis was entirely based on clinical examination. No laboratory tests were available. Careful, reliable painstaking records of all syphilis cases were maintained in a large central register. The cases were kept under day to day observation over period of months and the final diagnosis was entered only at the time of discharge from the hospital. Hence the margin of error of clinical diagnosis would be minimal.

It was left to Boeck's successor, E. Bruusgaard who was curious to know what happened to Boeck's patients after they left the hospital. In 1925-1927 Bruusgaard carried out an investigation and by means of personal examination and search of the hospital, clinic and autopsy records, he was able to get information on 309 living patients and 164 of those who had died. The total of 473 patients constituted 21.7% of the original material at the time when the investigation was closed in 1927. In 1929 he published a paper giving his findings on the "fate of syphilitics who received no

treatment". On a critical study of his findings it was found that his sample was highly selected and not representative of the original Boeck material or of untreated syphilis as a whole, although his findings were quoted from text book to text book and in journals for about 2 decades.

Summary of Bruusgaard's data :
473 patients.

Patients showing at Examination
or death :

Neuro syphilis	...	..	9.5%
Cardiovascular syphilis	...	...	12.8%
Benign late	..	...	12.2%
Latent syphilis	..	...	14.1%
Spontaneous cure	...	...	27.9%

Nothing happened till 1948, when a number of syphilis experts on either side of the Atlantic met and discussed the possibility of a restudy of the Boeck's material. Trygve Gjestland a junior colleague of Professor Danbolt, the present holder of the chair at Oslo, undertook the restudy of the entire Boeck material with the help and the cooperation of the United States Public Health Service, the Norwegian Public Health Service and three Universities of Oslo, Bergen and Columbia, not to mention a number of individual top-ranking syphilologists.

Gjestland with a limited staff started the restudy in 1949 and completed the investigation in 1951. The careful planning, the tracing and identification of patients, the rechecking and cross checking of the identifying data and the laborious analysis of the enormous amount of information is a model of its kind and unexcelled in the field of medical research, and is directly a tribute to the author and his staff, and indirectly to the country of his origin whose achievements in the field of social welfare and public health are well known. The aims of the author were to (1) trace as many patients as possible to an end point, defined as the last observation whether living or dead, (2) to collect the maximum

amount of clinical data on each patient from the date of his original discharge, all through the interim period of 40 to 60 years, (3) to determine the cause of death through the available multiple sources of information, and (4) to examine as many living patients as possible according to the most up-to-date clinical and laboratory investigations.

After a careful analysis of Boeck's records certain specific questions were formulated by Gjestland with a view to obtain answers from the collected data. The questions are :

1. What are the frequencies of (a) secondary clinical relapse (b) of benign tertiary syphilis (c) of late symptomatic syphilis (d) of life long latency (e) of spontaneous cure?
2. What are the effects on longevity, on causes of death and on mortality over that of non-syphilitics?
3. Does sex influence outcome?
4. What is the influence of age at time of infection on the ultimate outcome?
5. The effects on the outcome of pregnancy at varying intervals following infection?
6. Is a syphilitic more liable to suffer from other diseases than a nonsyphilitic.

Gjestland confesses that the available data, cannot provide answers for each and every one of the questions formulated by him. A careful analysis of the reports of the syphilis registry of the department of Dermato Venerology at Oslo Hospital showed that 1978 patients with primary and secondary syphilis and secondary relapse had been discharged from Boeck's department during the 20 year period 1891-1910. Out of this number, the author took only 1404 patients excluding 574 non-Norwegians and non-residents of Oslo for the purpose of the study. The sex ratio of male to female was 1 : 2 and the mean age for the total group was 24.8 years with very

CONGRATULATIONS



DR. R. V. RAJAM, M.S., F.R.C.P., F.R.S. (Edn.)

Director, Institute of Venerology
Principal, Madras Medical College 1948-52
First Dean, Madras Medical College &
Madras General Hospital 1951-52



DR. S. T. ACHAR, M.D., F.R.C.P.
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WELCOME



DR. MRS. H. N. SHARMA,
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Professor of Preventive &
Social Medicine

little difference between the sexes. By stage of syphilis the vast majority were primary and secondary syphilis, with a predominance of the purely secondary in females. In the study group there were about five per cent of children with acquired infection. The patients in the study mostly came from the under-privileged section of the population living in slum areas in Oslo. An analysis of the treatment status of the patients prior to, during and immediately after discharge from the hospital revealed that they were left untreated mostly except for the administration of Pot. Iodide in a percentage of the cases. The mean length of hospitalisation of the patient was 2.7 months for males and 3.9 months for females, showing a marked difference. Among the study group investigated, 72 males (16.1%) and 187 females (19.5%) were alive at the time of the restudy in 1949-1951 while the dead about whom there was sufficient information were 259 males and 435 females (58.1% males and 49.4% females). Most of the living patients had passed the biblical limit of three score years and ten. On the question of treatment during the interim period of 40-60 years, Gjstland by laborious investigation and tracing the historical development of specific treatment available in his country during the successive decades of the long interim period, concludes in about 83.4% of patients there was no treatment. The results of the final analysis of the collected data are presented and discussed in separate chapter headings. At the same time he has reviewed the pertinent literature on the subject.

1. Clinical Secondary Relapse :

Most of the modern Syphilologists have stated that clinical secondary relapse occurs only in inadequately treated syphilis, and never occurs in untreated syphilis. Gjstland has debunked this concept, by his study of the Oslo material and found about 25% of the patients had relapsed one or more times, during a period of 2 years after discharge from hospital. The sites of relapse were muco cutaneous in 84.8%;

MC—3

occu'ar in 6.1%; and skeletal in 2.2%. An interesting and significant feature in the study of secondary relapse is the almost complete rarity of neuro recurrence. In order to test the commonly held hypothesis that patients with clinical secondary relapse are more prone to develop serious late manifestations, the author of the study analysed his cases and found that there was no statistically significant difference in the development of late lesions between relapsers and non-relapsers.

2. Benign Tertiary Syphilis :

15.8 percent developed benign late syphilis and a third of this number experienced more than one outbreak of benign tertiary syphilis. A break down by sex revealed that benign tertiary syphilis seemed to occur earlier, and was more frequent among females in contrast to what appears to be the case in cardiovascular syphilis and neurosyphilis. The mean duration of infection was 11.6 years. The sites of involvement were :

- (a) skin in 70%
- (b) skeletal in 9.6%
- (c) mucous membrane in 10.3%

12.1% experienced precocious tertiary lesions within the first two years after infection.

Gjstland tested the validity of the commonly held belief in the protective and preventive effect of benign tertiary syphilis against the development of serious cardiovascular syphilis and neurosyphilis, by using three indices when analysing the Boeck material :

1. The frequency of the concomitant incidence of Benign tertiary with cardiovascular syphilis and neurosyphilis.
2. How many cases of cardiovascular syphilis and neurosyphilis were preceded by the occurrence of Benign tertiary syphilis,
3. Frequencies of serious late manifestations in those who had experienced Benign late syphilis and those who had not suffered from Benign late syphilis - by a follow-up study.

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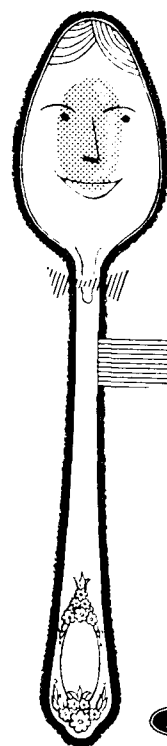
d-Pantothenyl alcohol 1.0 mg.
Niacinamide B.P. 20.0 mg.
Vitamin B₁₂ U.S.P. 2.5 meg.
Vitamin A U.S.P. 5,000 I.U.
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By the first index, only 2 out of 92 cases of cardiovascular syphilis and 5 out of 62 cases of neurosyphilis were observed to have developed Benign tertiary lesions simultaneously, thus appearing to lend support to the currently held concept. But on the basis of the widely differing incubation periods of the three types of syphilis - 11.6; 21.1; 32.9 years the rarity of concomitant lesions is understandable. When tested by the 2nd index it is found that the proportions of Benign tertiary syphilis that preceded the serious late manifestations were not smaller than the proportions in the study group as a whole, indicating the absence of any protective effect.

18.4% cardiovascular - preceded by B. T. S.

16.1% neurosyphilis " " "

16.3% of Benign tertiary in the study group as a whole.

When analysed by the third index, far from indicating any evidence of a more favourable outcome among those who were known to have had Benign tertiary syphilis, the study shows on the other hand, consistently higher incidence of C. V. S. and C. N. S. among them. Hence by all the three indices, Gjestland proved that B. T. S. does not seem to protect against C. V. S. and C. N. S.

To sum up, the author of this study has made a significant contribution to the study of syphilis in disproving the currently held views on (1) Pathogenesis of secondary clinical relapse, (2) Prognostic gravity of clinical secondary relapse in respect to the latter development of serious late lesions and (3) on the protective effect of Benign tertiary syphilis against serious late syphilis. He has further in the writer's opinion performed a distinct service to tropical syphilology about which there is a lot of loose thinking and unverified assumptions. It is oft said and repeated that the paucity of serious late manifestations of syphilis of the cardiovascular and central nervous systems in tropical and near tropical countries of the world is due to the protection afforded to these tissues by antecedent florid and destruc-

tive lesions of the skin and skeletal systems both early and late.

3. Neuro-Syphilis:

In the study group, the incidence of neurosyphilis was 6.5% (males 9.4 and females 5.0) ratio male to female : 2 : 1. In this group of 62 patients, there were four cases of neurosyphilis in patients who acquired syphilis in childhood under 15 years of age.

Types of neurosyphilis—diffuse meningo vascular, general paresis, tabes dorsalis, and gumma of the brain in descending order of frequency, are the form. Among the paretics (20 in the series) there was one interesting case recorded of a patient infected in 1896 at the age of two. General paresis was diagnosed in 1931 when the patient was 37 years old. He was successfully treated with Malaria. He was alive and well in 1951 at the age of 57 years. The mean duration of infection varied in the three major types meningo-vascular 18.8 years, general paresis 19.7 years and tabes 36.8 years. neuro syphilis was the primary cause of death in 63.6% of the dead known to have suffered from neurosyphilis. The author in discussing the influence of treatment in the incidence of neurosyphilis quotes with approval the following statement by Moore, 'Treatment adequate or inadequate appears to have no influence in increasing the incidence of any form of clinical neurosyphilis except acute syphilitic meningitis.'

4. Cardiovascular Syphilis:

Gjestland in his study has excelled himself in his presentation of the subject of cardiovascular syphilis which is the Waterloo not only of the physicians, but also of the host in his fight against the insidious treponemal invader. The reader is referred to the chapter in the monograph for a proper understanding and further appreciation of the subject of cardiovascular syphilis. The author has at great length reviewed the pertinent literature on the subject of cardiovascular syphilis with reference to diagnosis, sex, age, duration of infection, occurrence, occupation and prognosis and after

presenting his own data, has discussed the many controversial as well as the generally accepted features of this most fatal of all complications. For the purpose of the study, cardiovascular syphilis was classified into two broad categories—uncomplicated aortitis and complicated aortitis, the latter subdivided into aortic regurgitation, aortic aneurysm and osteal stenosis. He discusses the controversy over the clinical diagnosis of uncomplicated aortitis. The gross discrepancy between the clinical and autopsy evidence of uncomplicated aortitis reported in the literature and in his study of the Boeck material goes to prove, that only in a limited number of cases has clinical diagnosis been proved correct by subsequent confirmation by autopsy. From the study of the pertinent literature, Gjestland states that there is definite evidence that adequate treatment given for early syphilis appears to prevent the subsequent onset of cardiovascular syphilis in almost 100% of cases. In the study group there were 92 cases of cardiovascular syphilis constituting 10.4% of the untreated group. The diagnosis was verified by autopsy in 60% of the cases. 22 of the 25 cases of uncomplicated aortitis were only discovered at autopsy. There were no cases of cardiovascular syphilis among the 62 patients who acquired syphilis in childhood. Thus it would appear that in respect to the development of cardiovascular syphilis, congenital infection as well as infection acquired in childhood run a milder course than would be expected. The total of 10.4% of the patients with cardiovascular syphilis in one form or other consisted of 2.8% of uncomplicated aortitis and 7.6% of complicated aortitis. On a sex specific basis, the predominance of occurrence in the males over that in the females is observed with a ratio of 1.9 to 1. The excess of sex difference is seen in all the complicated forms and in the total as well. There was no significant difference between the sexes in the occurrence of uncomplicated aortitis. The factors of hormonal influence in pregnancy and menstruation, occupational stress and physical activity in the causation and frequency of

cardiovascular syphilis are discussed by the author in some detail, and the study seems to suggest that occupational stress and physical activity may explain the extent to which these complications will develop and may also account for the difference in incidence between the sexes.

The duration of infection at the time of recognition of cardiovascular syphilis irrespective of the type was 31.4 years in males and 31.7 years in females. Cardiovascular syphilis was the primary cause of death in 61% of the male cases and in 47.6% of the female cases. On going through the two chapters on neurosyphilis and cardiovascular syphilis, the speaker noted there is no reference to the collateral presence of neurosyphilis and cardiovascular syphilis in the study material. Since the average duration of syphilis in Boeck's patients at the time of the investigation was 50 years and since the incubation periods of the two late complications are different, one would expect a certain proportion of patients showing clinical evidence of both the complications. It is possible that the study material did not furnish information on this question.

Mortality:

There is general agreement among experts about the fact of the excess mortality among syphilitics untreated or inadequately treated. Two theories are advanced to explain the phenomenon:

1. Syphilis is predominantly a disease of the underprivileged sections of society. These sections besides being exposed to the health hazards of syphilis *per se* are naturally exposed to the risk of a host of other diseases more commonly encountered in such population groups. Hence they would be expected to show a greater mortality from all causes than non-syphilitics do. Hence it is logical to infer that syphilis can only be partly held responsible for the excess mortality.

2. Syphilis as a generalised systemic disease besides causing death primarily as a result of the infection, may exert a deleterious

non-specific effect on most of the organ systems of the body, thereby increasing the morbidity and mortality from a large number of illnesses other than syphilis. In the Oslo study material, syphilis was the primary cause of death only in 15.1% of males and 8.3% of females. In a 100% syphilitic population, 84.9% of males and 91.7% of females died of other causes. How far in the latter group was syphilis a secondary cause of death could not be known. By a comparison of the mortality experience of two control groups in the lower and the higher socio-economic sections in the city of Oslo, Gjestland is inclined to the view that the excess mortality found among the syphilitics can be explained on the basis of the fact that they come from the lower socio-economic strata of the population who in addition to syphilis were victims of other diseases. Syphilis kills only through the lethal effects of its serious late manifestations.

Spontaneous Cure :

The stringent criteria laid down by Moore for defining spontaneous cure are as follows: "In a group of originally untreated syphilitics, a diagnosis of spontaneous cure should fulfil the following conditions. The patients, (1) had shown no symptoms of syphilis after the early outbreak, (2) had received no specific treatment for latent syphilis during the interim period, (3) had been examined before death with normal physical findings as far as syphilis was concerned, and who then had a negative serological test and normal spinal fluid, (4) had at autopsy shown no evidence of syphilis. The author states there has been no representative group of patients including the Oslo group who could satisfy these rigid, almost impossible, criteria. But from the point of view of individual patients, Gjestland from the study of the voluminous data he had collected, found a large number of the untreated or inadequately treated syphilitic patients had passed through life with little or no inconvenience as a result of the disease. From the study material, it would appear only 28% were found to have deve-

loped some type of late manifestations, while 72 out of 100 patients were found not to have developed any late lesions. After recognising the fact that his figures on the various complications represent a minimum, Gjestland concludes by saying that somewhere between 60 and 70 (probably closer to 60 than to 70) out of every 100 untreated syphilitics in his series went through life with little or no inconvenience as a result of the disease.

The writer has attempted to give a short resume of the natural course of a chronic disease (Syphilis) from the monumental study of Boeck's syphilitic material by Trygve Gjestland, and would recommend that the monograph in original should be read by all physicians. From the prognostic point of view, the study reveals that the human organism is capable of vanquishing the treponemal invader by its own unaided defence mechanism in a large number of cases, but it does not follow that a Laissez-faire attitude is justified. Both on public health principles and from the impossibility of foretelling in any individual case of untreated syphilis whether he is likely to develop serious late complications, it is incumbent that syphilis as a communicable and social disease should receive adequate treatment particularly when specific drugs are available.

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Parasitologist, Protozoological Laboratory of the
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Institute for Epidemiology and Microbiology,
Prague, Czechoslovakia

Specificity of the Intradermal Toxoplasmin Test for Jindrich, Jira, Vera and Schuhova

Of all the serological methods evolved, the most popular ones are (a) Sabin-Feldman's dye test (DT) (b) Complement-Fixation test (CFT) (c) Frenkel's Intradermal test (I.D.T.). The results obtained by these three different tests by various workers show a remarkable coincidence 80-95 p. c. both in patients and in normal persons.

These tests however, possess a definite time periodicity, during which the results are positive, but the duration and appearance of the positive reaction vary with each. This disagreement, which is present even when two or more persons are each tested with all the three methods, can be explained in the following way:

1. The dye test is the earliest to show positivity, which remains for several years, and in low titres for a much longer time.
2. In the C. F. T. the positive reaction appears later, and becomes negative earlier than (1)
3. With the I. D. T. the delay in the appearance of the positive reaction is greater than with the other two tests, but on the other hand this lasts through out the life-time, in our experience upto 9 years.

Thus by means of the I. D. T. we are enabled to discover infections that occurred many years ago, and for this reason with I. D. T. we obtain a higher percentage of positive results both in healthy persons and in persons who are suffering from various chronic diseases, because in the meanwhile, the other two tests produce a negative result due to the time lapse.

Because of its simplicity and absence of complex techniques, it is suitable for collective or massive examinations, for clinical diagnosis or in cases excluding the utilization of the dye test or C. F. T. and is recommended by us as the best. (Jirovec-Jiro-1957).

Because a certain doubt exists in the minds of some workers regarding the specificity of the I. D. T., we have undertaken a series of control examinations, the results of which are detailed below:

Our Toxoplasma antigen is prepared by Dr. Jira from the peritoneal exudate of mice inoculated with Toxoplasma (strain C. B, Pasteur Institute, Paris). The detailed technical date has been published in scientific papers by (Jirovec, Jira, Fuchs and Peter). The errors that may creep in and mask the results of the tests can be divided into the following groups.

1. Non-specific positive reactions to Phenol (0.25 p.c. to the Toxoplasmin) are of no practical importance, because an equal amount of phenol is used for the preparation of a control antigen. (e.g. Phenol-physiological solution, a.o.). Besides we made sure that a very great majority of the 11,000 persons tested showed a negative phenol reaction, and only in rare instances were there persons with a phenol positive reaction, and these instances can be regarded as negligible.

2. The possibility of a non-specific reaction due to the heparin added is a very remote possibility, because the heparin content in the prepared antigen is quite insignificant. (to 1 gm. of Toxoplasma suspension in 100 ml. physiological solution 1-2 mg. heparin is added

(maximum permissible) so that 0.0003-0.0006 mg. heparin is present 0.1 m.l. of Toxoplasmin concentrated 1.3000. Control tests were undertaken; 60 persons were tested with heparin physiological solution (100 ccm+1 mg heparin), no positive reactions were produced.

3. Non-specific positive reactions caused by bacterial infection can be practically excluded, as the preparation of the antigen is conducted under rigorous sterile conditions, and the peritoneal exudates showing signs of bacterial infection are removed in advance, besides the phenol added to the antigen prevents the growth of bacteria.

4. Non-specific negative reactions were obtained due to the use of long stored and expired antigen. 30 persons were vaccinated with fresh antigen while others were vaccinated with antigen prepared a year previously. Both results were practically identical, so antigen of a good quality retains its antigenic properties in storage. In our practice we do not store the Toxoplasmin for such a long time, as our stocks are rapidly consumed within 3-6 months. Consequently, we are invariably using fresh antigen, so that incorrect results are very rare.

5. Non-specific positive reactions due to the presence of mouse albumins; the quantity of albumins in the purified antigen is very minute, because only sediment containing the toxoplasma and a few cells are utilized in the preparation, the supernatant being removed. The cells of the host is only 5-10 p.c. of the whole volume. Another factor is the fact that it is uncommon for man to be allergic to mouse albumin, because he practically never comes into contact with them. Nevertheless we considered it necessary to perform control experiments to clear this doubt.

(a) Preparation of a control antigen with mouse ascitic fluid is rather difficult. We inoculated about 5 m. l. physiological solution into the ventral cavity of mice and after 2 hours removed the exudate containing leucocytes

and lymphocytes. With the sediment obtained we prepared a control antigen using the same technique as with Toxoplasmin. Control tests were made with 30 persons all with negative results.

(b) A control antigen from the spleen of mice has been recommended by Frenkel (1948) as the relative proportion of cells, both in type and quantity is similar to those in the peritoneal exudate. We made the spleen antigen from 1 gm. of spleen of healthy mice, the whole process being the same as that of Toxoplasmin. Being composed of pure host cells, it was diluted with physiological solution 1:1000, that is 2 to 4 times as much as Toxoplasmin. In spite of this great dilution it contains far more mice albumin than Toxoplasmin does. (1:300-1:500).

Out of 260 persons every 9 persons showed a very weak positive reaction; a transitory erythema (6 to 8 mm in diameter) developing after 24 hours, with a very slight induration or no induration at all. After 48 hours both of them practically disappeared. In any case, such small reactions are considered negative, because a positive reaction commences as a++ weak positive, grow to+++and++++ reactions which are evaluated as strong or definitely positive.

(c) For comparison we inoculated 45 persons both with our mouse antigen, and with an antigen of chorioallantois. All the controls were negative, in Toxoplasmin positive persons the reaction with chorioallantois Toxoplasmin was a little weaker, probably due to the too great a dilution.

(d) 80 persons were inoculated with our mouse antigen, and simultaneously with an antigen prepared from a tissue culture grown by Dr. Schuhova (Institute of Epidemiology and Microbiology), and in the same way as monkey's kidney and the results compared (a considerably smaller amount of Toxoplasma where harvested than from mouse ascites). Both antigens gave similar reactions,

only, the tissue culture Toxoplasmin was weaker. Controls made of normal non-infected tissue cultures were all negative.

(e) Dr. Thalhammer (Wien) kindly sent us some lyophilised Toxoplasmin, and we inoculated 40 persons with it. As the samples had aged past the expiry date, we used a dilution of 1:8 instead of 1:15. Thalhammer's antigen gave weaker reactions than our mouse antigen, though the results were identical.

(f) A new Toxoplasmin made by Doc. Westphal, Hamburg was used in the inoculation of 80 person and again we obtained the same, but weaker reactions, as with our mouse Toxoplasmin.

Discussion and Summary

By a series of experimental inoculations we found out that though Toxoplasmin antigens of various origin (mouse peritoneal exudate, chorioallantois, tissue suspension etc.) were used in the inoculation of the same group of persons, similar reactions were obtained. Quantitatively the strongest and clearest reactions were produced by the mouse exudate Toxoplasmin, which besides possessed certain economical advantages; i. e. it's preparation is simpler and cheaper and it yields a far greater amount of Toxoplasma suspension than other techniques. Non-specific sensitization of the Lirman organism to mouse ascites, chorioallantois or tissue culture is obviously out of the question.

TABLE I

Toxoplasmin 1 year old stored by 4°c	0	++	+++	++++
Toxoplasmin 1 month old	0	15	0	0
	++	0	4	0
	+++	0	2	1
	++++	0	0	3
Sum total of the tested Persons	30			

TABLE II

Comparison of Toxoplasmin reactions of the same persons inoculated with antigens of mice, chorioallantois and tissue cultures.

	a/ Toxoplasmin of chorioallantois 1:200/Dr. Heyberger/				b/ Toxoplasmin of tissue cultures 1:300/Dr. Schuhova/			
	0	++	+++	++++	0	++	+++	++++
Our Toxoplasmin of mice 1:500 0	27	0	0	0	53	0	0	0
++	0	2	0	0	0	2	0	0
+++	0	1	4	1	0	3	3	1
++++	0	2	4	4	0	0	12	6
Number of tested Persons	45 Persons				80 Persons			

TABLE III

Comparison of the intradermal reactions performed with control antigens of mouse spleen, chorioallantois and tissue culture.

	Mouse ascites	Heparin- phenol- physiol solution	0.25% Phenol- physiol solution	Spleen antigen 1 : 500	Chorio Allantois 1 : 200	Tissue culture 1 : 50
	0			0 ++	0	0
Toxoplasmin of mice 1 : 500	0	15	40	F. 640	140 0	27
	++	2	4	560	20 1	2
	+++	3	6	1350	35 4	6
	++++	10	10	1650	56 4	10
Number of tested Persons	30	60	11·000	260 persons	45 persons	80 persons

TABLE IV

Comparison of our mouse toxoplasmin with the lyophilised antigen of Thalhammer and with a new Toxoplasmin charge by Westphal.

	Lyophilised Toxoplasmin by Thalhammer 1 : 8				New Toxoplasmin charge by Westphal 1 : 5			
	0	++	+++	++++	0	++	+++	++++
Our mouse Toxoplasmin 1 : 500	0	22	0	0	0	40	0	0
	++	0	2	0	0	1	3	0
	+++	0	4	2	0	0	12	2
	++++	0	2	8	0	0	8	6
Number of persons Tested	40 Persons				80 Persons			

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Professor of Physiology,
Madras Medical College

Non Olfactory Functions
of the Rhinencephalon

The olfactory portions of the cerebral hemispheres are grouped together under the name rhinencephalon. Phylogenetically these portions represent the oldest parts of the cerebrum, and in some of the lower vertebrates the entire cerebral hemispheres are connected with the olfactory nerves. While in mammals both the olfactory and non-olfactory parts of the brain reaches their highest development, there is considerable variation in the relative size and importance of the olfactory apparatus. As a rule, it could be said that in those animals which depend to a great extent on the sense of smell in their search for food, the rhinencephalon shows its greatest development. In man the sense of smell has ceased to play an important role in guiding his activities, and there is an apparent diminution of the importance of the rhinencephalon. This is apparent, because there is good reason to believe that the connections of olfactory mechanisms with visceral and somatic activity in man are just as significant as in the lower forms, even though his sense of smell is not so acute. As beautifully expressed by Ranson—"Man's judgement of his own sensitivity in such matters is subjective, and while he may feel inferior to the dog in his ability to track a rabbit, he may have even better discrimination in other directions, which cannot be readily compared with the experience of the lower animal".

On histological and experimental evidence the rhinencephalon comprises the following structures:-the olfactory bulb, olfactory tract, olfactory tubercle, the pyriform areas, the hippocampus, hippocampal gyrus, amygdala, fornix, anterior commissure, anterior nucleus and other portions of the thalamus, the mam-

millo-thalamic tract, habenular nucleus, habenulo peduncular tract, corpus striatum, claustrum, putamen, globus pallidus, ansa lenticularis and certain other related structures.

While the rhinencephalon is predominantly concerned with the olfactory sensation, a wealth of experimental evidence has accumulated recently to show that a variety of generalised functions, only incidentally related to olfaction, are subserved by these older parts of the forebrain. The spectrum of activities, both autonomic and somatic, being influenced by the stimulation of the rhinencephalic complex is so widespread that it is impossible at the moment to ascribe to it any specific function. I shall merely attempt in this short article to indicate the progress made in this direction during the last decade.

At the outset it must be emphasised that attempts at functional localisation in the rhinencephalon have not been successful. There is considerable overlapping of responses from any restricted area. However, Kaada and his co-workers have shown that stimulation of the medial portions of the amygdala produces somato-motor effects such as tonic and clonic movements of the extremities, licking, sniffing, chewing and inhibition of respiratory movement as well as autonomic responses like, pupillo-dilatation, salivation, micturition, defecation and piloerection, whereas the stimulation of the lateral portion elicits behavioural responses suggestive of attention, fear or rage. The behavioural responses are also obtained by stimulation of the hippocampus and the limbic lobe surrounding the hilus of the hemisphere.

Memory Mechanism: The basic mechanism of memory is far from clear. Nevertheless an array of evidence obtained as a result of stimulation of the brain in conscious patients and of therapeutic ablation of certain restricted areas clearly points out that the rhinencephalon structures on the medial aspect of the temporal lobe are intimately and critically concerned with human memory function. The hippocampus and hippocampal gyrus seem to be particularly concerned with this function. Ablation of these structures is followed by loss of memory for recent events without affecting the intelligence or attentive process of individuals.

Rhinencephalon and Behaviour: It has been shown in animals that the rhinencephalic structures in common with the thalamus and brain stem reticular formation, through diffuse projections, are capable of exerting a regulatory influence on the other parts of the brain. These connections suggest that the system may be concerned with the integration of highly organised behavioural patterns. Experimental and clinical evidences have amply confirmed the suggestions. However, when one goes through the mass of literature on the subject, one is apt to come out bewildered regarding its role on the elaboration of this complex activity. The situation has been excellently summed up by Jasper, Gloor and Milner thus, "Behavioural studies in animals and man demonstrate that the rhinencephalon must play an important part in the integration of complex forms of behaviour. Most of the studies suggest that the motivational forces of behaviour as represented by emotion are somehow dependent upon these structures, the extent of this dependence remain uncertain, and the numerous contradictions which still stubbornly remain irreconcilable with each other preclude at the present, formulation of a coherent theory describing the role played by rhinencephalic function in

the integration of emotional behaviour. In any case, the wide range of activities, somatic, autonomic, endocrine, electrographic and behavioural known to be influenced by rhinencephalic function would be compatible with the theory that the rhinencephalon plays a major role in the elaboration of emotional behaviour."

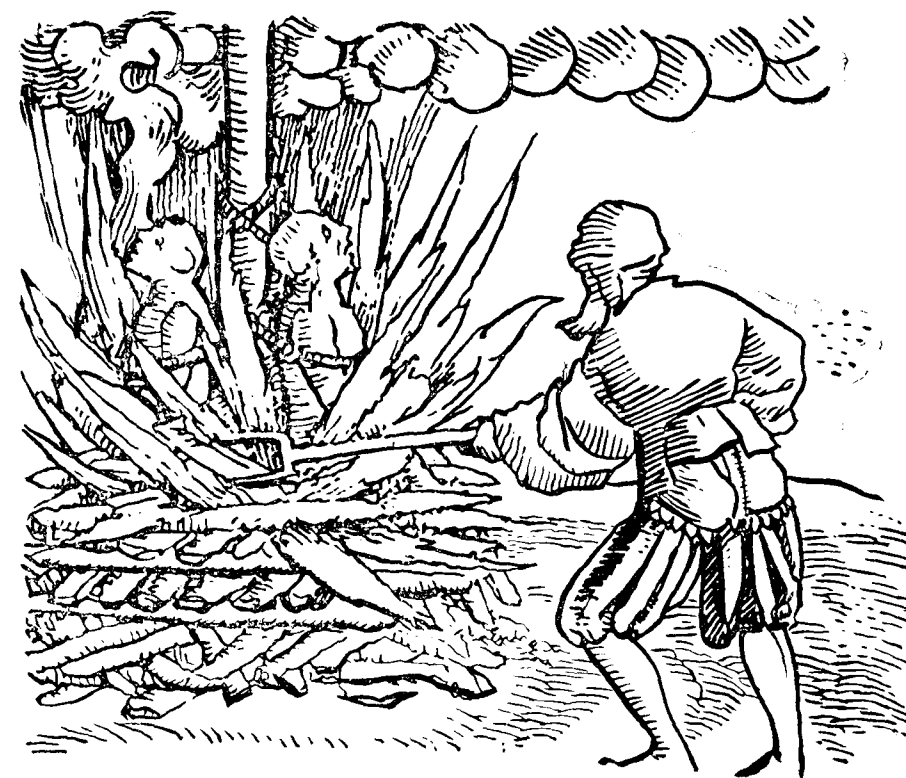
Rhinencephalic Control of Endocrines: It has been definitely established that the amygdala and the overlying mediobasal temporal cortex acting through the hypothalamo-pituitary axis exerts an influence on the release of gonadotrophic hormone by the anterior pituitary. The nature of the influence seems to be both inhibitory and excitatory. Schreiner and Kling demonstrated that bilateral removal of the amygdala in cats results in marked hypersexuality through the release of an excessive amount of sex hormone, suggesting that the amygdala inhibits gonadotrophic secretion by the pituitary. However, the observation of Koikegami, that stimulation of the amygdoloid produces ovulation in the female rabbit suggests an activating influence. Koikegami and co-workers have further reported that bilateral destruction of the amygdala in puppies results in atrophy of almost all the principal endocrine glands in the body. This observation however has not been confirmed in adult animals.

In conclusion, it may be pointed out that the rhinencephalon has been included as an important component of the limbic system (visceral brain), subserving autonomic function, and forming the structural back ground, not only of emotional expression, but of affective behaviour in the broadest sense. Kubie has pointed out that this system has an extensive relationship with both the neopallium and hypothalamus, becoming in this way a cross road or association area for both internally and externally derived perpetual processes. ★

THE BLACK DEATH

In medieval times when the plague descended on a city, it became a scene of utter panic and chaos. Houses and streets were filled with dead bodies, thousands fled their homes. People faintly suspected as plague-spreaders were burnt at the stake. But such horrid quarantine practices and attempts at combating the plague through prophylactic and dietetic measures were powerless to check its onslaught. During the 14th century, the successive waves of the plague that devastated the world killed no less than 25 million people in Europe alone.

Modern medical science has conquered many epidemic diseases that were once such scourges to mankind. This has been made possible largely by the development of Chemotherapy.

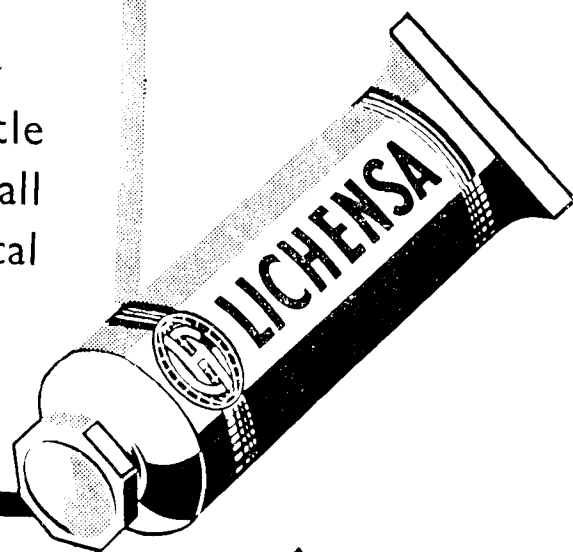


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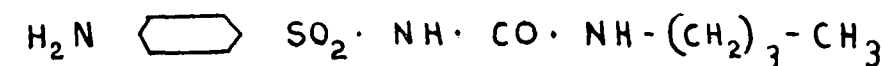
Oral Therapy in Diabetes Mellitus

Many of us are now familiar with the introduction of an oral medication for the control of diabetes mellitus and it is nearly over two years since the drug has been introduced in our country for therapy. It was Janbon (1942), who first noted the hypoglycemic side effect of the sulpha drugs while investigating the compound sulpha-isopropylthiodiazol and it was then known that this hypoglycemic side effects of the drugs might be beneficially applied to lower the blood sugar levels in diabetes mellitus. Later several other workers have shown similar activity in several other sulpha derivatives of the compound.

These led to the discovery of the sulpha compound called Carbutamide (also known as B 255) and later to a still further improved derivative namely Tolbutamide, (also known as D 860). This Tolbutamide, by virtue of its lack of any possible side effects and being a non-sulphamido derivative has now begun to be used for regular oral therapy in diabetes mellitus.

Both the compounds are chemically derivatives of urea, and could be easily synthesised, and are now available for therapy. Carbutamide is chemically known as N₁ Sulphanilyl —N₂-H. Butyl urea with the formula

Carbutamide



While tolbutamide is



(N. para tolysulphomyl N₂n-butyl urea). It is obvious from the chemical structure that the replacement of NH₂ by CH₃ in D 860 affects the properties of the compound, and the harmful possible effects are eliminated by the removal of the NH₂ group. So the present oral anti-diabetic drug in wide general use is only Tolbutamide.

Tolbutamide is an insoluble compound, but it is readily absorbed from the gut, especially in the absence of highly acid medium, or preferably in an alkaline medium. It has a slightly bitter taste and is well tolerated by mouth. When taken by mouth the drug is not acetylated like other sulpha drugs, and is presumably oxidised mainly in the liver and to some extent

in the kidney and other organs, and is converted to simple derivatives of carbonic acid and hence is easily eliminated from the body without any damage to the excretory system. After oral administration, the blood concentration reaches a peak in about three hours and has no possible prolonged effect unlike the previous compound, namely Carbutamide, which has a more prolonged depot-like action.

Before applying the oral form of therapy on any patient, it is wise to consider clearly whether the drug is suitably indicated in that particular diabetic. With the experience so far, it has been found that maturity of age must be considered as a definite point in the selection of cases. It is advisable to use the

drug in general in diabetics over the age of thirty years although occasionally a younger diabetic may respond. Diabetics with ketosis or coma, and with serious complications of the diseases like severe neuropathy or nephropathy, and surgical complications should be considered unfit for this oral therapy. The drug is practically ineffective in juvenile diabetics.

Prior to therapy it is advisable to carry out a glucose tolerance test in every case possible and failing which at least a post-prandial blood sugar estimation and simultaneous urine examination for sugar must be done. This will help in assessment of the degree of the diabetic condition and suitable advice regarding the diet can be given. The patients should be prescribed a certain definite diabetic diet, taking into the usual consideration of the diabetic state, the stature and weight of the individual, and any associated complicating diseases. During the course of the oral therapy, especially during the first few weeks a random blood sugar estimation once a week or once in ten days and frequent urine examination for sugar may be necessary to assess the diabetic control.

The drug is available in 0.5 gm tablets and is often administered in initial loading doses of 4 to 6 tablets on the first two or three days, and then gradually reduced to two tablets as maintenance therapy. In a few cases the maintenance dose may be increased to three tablets or reduced to one tablet, or very occasionally to less than one tablet daily. The dosage of the drug does not seem to vary much with the severity of the diabetic conditions. So this dosage seems to be suitable for most diabetics. In this respect it markedly differs from Insulin therapy, where very careful adjustment of dosage is necessary.

The therapeutic and clinical results of the use of the drug seems to be favourable, and it can be said that about 60 to 70% of the suitable diabetics respond well to the drug with the fall of blood sugar to normal levels, and maintain

normal levels for four to seven days on continued administration of the drug. In about 10% of the cases the blood sugar response is less, and after a varying period of one week to one month only a just satisfactory response is obtained. In about 20% of the suitable cases, there is total failure of response to therapy without any obvious cause. During the earlier clinical trials it was noted that a very good response to treatment was observed in diabetics without any previous Insulin treatment, and in diabetes of short duration of less than two years of illness. So it was apparently stated that previous Insulin therapy for long periods, and long standing diabetes were not well indicated for oral therapy. Subsequent clinical experience has however, encouraged the use of the drug even in these patients. It has been found that suitable doses of Insulin can be used along with oral Tolbutamide therapy in the same patient, and so the amount of Insulin required will be definitely smaller than otherwise. The clinical trials suggest that a small amount of endogenous (or exogenous) insulin is necessary for the action of Tolbutamide and hence its effectiveness in mature diabetics and ineffectiveness in juvenile types have been explained.

It is difficult to compare the clinical results of Insulin with oral diabetic therapy. Every clinician is familiar with the use of Insulin, and the fact that Insulin is a physiological substance available for treatment in diabetes cannot be denied. It might probably be generally said that while Insulin is likely to produce sharp changes in blood sugar levels, Tolbutamide might gradually change the blood sugar levels to only normal levels. This action of Tolbutamide unlike that of Insulin may be considered as an advantage in these diabetics who are highly sensitive to Insulin, and in diabetics, associated with severe cardio-vascular diseases. In general, many patients seem to be comfortable with oral Tolbutamide because they psychologically develop a better attitude

towards the disease, owing to the dispensing of daily injections.

It is no longer necessary to compare the actions and advantages of Carbutamide and Tolbutamide, and it has become more or less definitely established that Tolbutamide is the drug of choice in oral therapy, since it is most suitable for continued therapy in a disease like diabetes mellitus, although it is less potent in its hypoglycemic effect compared to Carbutamide.

Tolbutamide is devoid of any serious side effects. It does not produce any gastric irritation or discomfort. No serious hypoglycemic symptoms ever occur although occasionally patients complain of general weakness or mild giddiness. The drug seems to be devoid of any deleterious effect on the blood cells or the bone marrow. A few allergic skin reactions in the form of urticaria or erythematous rashes are however noted, and sometimes are serious enough to stop or to withdraw the drug for short periods, or necessitate the administration of antihistaminics.

The mode of action of these drugs is a matter of serious interest for the doctors and even the patients. It is essential to know the mechanism of action of the drug sooner, so as to combine its routine use in oral therapy in diabetes. The exact mechanism of action of these drugs is not yet settled, although various modes of action have been suggested. The fact that one substance is therapeutically effective only in a few selected cases shows that it possibly supplements directly or indirectly the actions of Insulin. It is likely that Tolbutamide prevents the destruction of Insulin, either by direct inhibition of the enzyme Insulinase or by a stimulation of Insulin inhibitor. Although these seem to be attractive theories, it is repeatedly suggested that rate of formation and liberation of the insulin from the β cells of the pancreas is increased at least in a few instances.

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could be a highly suitable drug although it may be agreed that it might exhaust the pancreas by continued Insulin stimulation. In the pursuit of the study of the mode of action of these drugs, it is possible that some valuable and new information concerning the metabolism in diabetes mellitus, as yet unknown, might be unravelled.

Thus a few conclusions may be arrived at with the present clinical experience on the use of the drug to assess its value in the field of Diabetic therapy.

1. Tolbutamide is undoubtedly a definite advance in the treatment of diabetes mellitus, and its blood sugar reducing property with the passive reduction of sugar has sufficiently impressed the clinicians.

2. Maturity in age seem to be a definite criterion in the application of the drug, and in general an age over thirty years seems to be highly suitable. The duration of the diabetic state and the duration of previous Insulin therapy seems to have little or no influence in the clinical results. Juvenile diabetics have been repeatedly found to be unsuitable for this form of therapy, as also cases with marked ketosis, coma or surgical complications. In all these cases Insulin is the treatment of choice. In a few occasional cases Insulin and Tolbutamide may be combined with advantage.

3. The definite diabetic dietetic regime should never be ignored during Tolbutamide therapy, and this must be impressed on the patients who easily relax their diets with the arrival of oral therapy, with the resulting poor control of the diabetic state.

4. The successful effects of the drug is often noted within a week to ten days although it might not sometimes be evident until a month. In well-controlled cases although it might be possible to withdraw the drug for short periods, restarting the drug will become

necessary sooner or later. An uninterrupted maintenance course of Tolbutamide therefore appears to be the best form of therapy.

5. The oral form of therapy has certainly got an advantage over Insulin and it is quite suitable for selected patients owing to its lack of any toxic effects, although the exact mode of action of the drugs is not yet understood.

While plunging into this form of oral therapy, the necessary use of Insulin (which is a physiological substitute in Insulin deficient diabetes) in suitable cases should not be forgotten. So it can never be considered at this stage, that this oral therapy is entirely to replace the use of Insulin in the fields of Diabetic therapy.

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Electronics in Medicine

S. A. JAYAKAR, Final Year, M.B.B.S.

It may appear that Electronics is entirely unrelated to Medicine, but it is not so. You may be surprised when you think of the number of electronic equipments that are in use in hospitals. It is essential for those in the medical profession to acquire a sound working knowledge of electricity and its manifold uses, to take advantage of the benefits it has conferred on us. In the modern age of Atomic energy and space flight, electricity plays a very important role in reducing human sufferings and in making life comfortable. Electronics has infiltrated far and wide into the medical world, and as a result, we have a number of gadgets at our disposal to investigate and diagnose an illness, as well as to treat it.

There are several instruments available to the physician to aid in diagnosing an ailment, of which, some make use of electro-magnetic radiations like ordinary light, X-rays, ultra-violet rays and radio broadcast rays. Others make use of the electrical potentials developed in the body by vital activities, as in the Electro-cardiograph, the Electro-encephalograph and the Myograph. Many gadgets utilise electric currents of various natures, such as galvanic current and faradic current of varying frequency. They are employed for the fractionation of serum electrically, testing the reaction of degeneration etc. A few instruments make use of sound waves, as in the case of the Audiometer or the Cardiophone.

The incandescent electric bulb is one of the greatest gifts that the inventive genius of Thomas Edison has given to science and humanity. It has thrown out in varying sizes, ranging from the surface of the foot to the size of the Laryngoscope, the Hysteroscope, Cystoscope, Ophthalmoscope, to the huge

arc lamps which make one feel hot and perspiring even when he stands several feet away from it. A later development is the fluorescent tube light which has a soft, shadowless glow. Several of these big bulbs or tubes are grouped together in the form of "Shadowless Lamps" which are seen in the operation theatres, and they give a soft and shadowless bright light to the surgeon, facilitating operative procedures. The electric light scores over its counterpart, the mineral oil gas-light, in its brilliancy, cleanliness and ease of handling and it does not need any pre-operative preparation to put it on. Most of the clinical students may possess the sleek pen torch and have developed the art of pointing it at the patients' throat like a pistol. It has a pre-focussed bulb without any reflectors. It is also used for studying the pupils and for transillumination of a cystic swelling. It is really handy and bright. Think of using a kerosene-oil lamp instead of an electric torch for transillumination; really, our forefathers in medicine were handicapped without the electric lights.

Electronics, in its march of progress, has conquered the field of Radiology for the benefit of mankind, in general, and for the surgeon especially. In surgery, X-rays play a major role, for the X-ray is the penetrating eye which sees the human body in and out. Like all spying eyes, it becomes dangerous when allowed to see for a long time. It is a form of electro-magnetic radiation similar to the light rays, radio and television broadcast rays, but much shorter in wavelength. The natural occurrence of X-rays and its elder brother the Cosmic rays in large concentrations beyond the Earth's atmosphere is confirmed by the recording instruments of

the artificial satellites, "The Sputniks" and "The Explorer" in Cosmic space.

The X-ray is artificially produced in the X-ray tubes by making an electron beam strike a metal plate with very great speed. To impart the necessary speed to the electrons high voltages are required. You might have noticed the titles "200 KV=400K. Volts Therapy" (K=a thousand) written on the walls of our Radiology department and wondered how the astounding figures of 200 Kilo Volts and 400 Kilo Volts are used in therapy, when the domestic supply of 230 volts give such a violent shock when it passes through the body. These figures merely denote the voltage used to produce X-rays of the "hard" variety. The hard X-rays have a shorter wavelength and a greater penetrating power than the soft variety. The 'soft type' is produced by lower voltages and used for screening and taking radiographs, since the contrast between the dark and the bright areas is greater. Soft X-rays are said to be produced even in the picture-tube of television sets, which is similar in its basic construction to the thermionic valve used in radio-receivers. Readers, who use their radio sets from morn to night, hearing the popular Radio Ceylon programmes, need not fear that they are exposing themselves to radiation hazards. The speed imparted to the electron stream in a radio valve is incapable of producing the necessary speed for the production of X-rays. But in TV-sets, volts of about 1000-1500 are used, thus greatly increasing the speed of the electron stream, with the production of X-rays of low penetrating power.

X-rays are put to innumerable uses in the medical profession and have become an invaluable tool in investigation and diagnosis, as well as, in the treatment of many diseases associated with the skeletal system and neoplasms. The multifarious uses of X-ray in diagnosis are:—

Screening:—is a technique performed in a darkroom. Screening is similar to the magic

lantern show, shown to us students during class hours by some of our very considerate lecturers. During screening, the X-ray shadow of the patients' body is adjusted to fall on a transparent glass screen coated with a fluorescent salt-Barium Platinocyanide. Where the concentration of X-rays is greater, the shadow is more luminous than those areas where the concentration is less. The body of the patient can be compared to the magic lantern slide and the shadow seen on the fluorescent screen, to the picture focussed by the magic lantern on the wall. X-rays find it difficult to pass through metals and their salts having a high atomic weight. Bones contain Calcium, an element of high atomic weight. So, little or no rays pass through the bone and thus, bone throws a dense shadow on the screen. While screening a patient, we can see the rhythmic contractions of his heart, the up-and-down movements of the diaphragm, the periodic expansion of the thoracic cage, the smooth passage of Barium Sulphate through the food-passages, and the direction of blood-flow in Angiocardiography very distinctly.

The plain X-Ray picture is the commonest, taken as a routine in any hospital, for investigation and diagnosis of a case, especially in the field of surgery. "Plain"-pictures in the literal sense of the word—are taken quite easily, showing only a plain negative. Taking pictures with a good contrast is really very difficult. In X-Ray negatives, the shadow of bones and other radio-opaque substances appear as transparent, bright areas, unlike the screening picture. This transparency is due to washing away of the lightsensitive halides in those regions of the negatives during developing, since they have not been activated by the radiations. X-Ray pictures are taken as well as screening is done:—

- (1) To locate and study any abnormality in the skeletal system. Radiographs, neoplasms etc.
- (2) For accurate localization of any foreign body in the body.

- (3) To study the gastro intestinal tract, ingesting Barium meal or administering a Barium enema, and then taking an X-Ray
- (4) To demonstrate lesions of the Liver and Spleen by Hepato-splenography
- (5) For the study of the extra-hepatic biliary system by Cholecystography
- (6) To localise and study any derangement in the urinary system by Intravenous Pyelography and Cystography
- (7) To detect any abnormality in the cardiovascular system by Arteriography and Angiocardiography
- (8) To read the normal or pathological anatomy of the bronchial tree and lungs in the respiratory system by Bronchography and Tomography and
- (9) To diagnose diseases of central nervous system by Ventriculography, and by injection of lipiodol into the cisterna magna to diagnose the presence and localise any swelling in the spinal cord.

Man's control over Atomic fission has given us the Radioactive Isotopes. Atoms of the same element which have different nuclear masses are called Isotopes of that element. When an element (eg) Iodine, is allowed to be acted upon by atomic rays consisting of fast-moving neutrons, a basic re-arrangement of the atomic structure of that element takes place without any change in its physical or chemical properties. This new substance tends to be unstable, that is, radio-active, and emits beta-particles and gamma radiations. The gamma-rays have great penetrating power and can be perceived by a Geiger-Muller counter or a Scintillation counter. The Radio-active Isotopes are utilized in Medicine to record the speed of circulation of the heart. Techniques, for the detection of sites of concentration as in Retrospect, the surface Thyroids, and Thyroid tumors, are used for localisation of carcinoma, and for metabolic brain tumors.

study where "tracer doses" of different elements, such as, Iodine 131, Phosphorus 32, Sulphur 35, Nitrogen 15, Carbon 14, Iron 59, Cobalt 60, Radio-active sodium and heavy Hydrogen are administered, and their fate in the living body is studied with radiation counters.

ULTRA VIOLET RAYS play a lesser role in diagnosis than X-Rays. Ultra Violet light is utilized in Ultra-Violet microscopes which give a much greater magnification (about 2000 x) than the ordinary oil-immersion microscopes (ordinarily about 1000 x). It is also used in the modern time-saving method of fluorescent microscopy for the detection of T. B. bacilli. A sputum smear is stained by a special stain (Auramine) which selectively stains the TB bacilli. This stain glows in U. V.-light, thus rendering the TB bacilli prominently visible. U. V-rays are widely used in the Medico-legal field also.

Ultra-Violet rays are produced by an electrical discharge through mercury vapour. The rays are invisible to the eye, and so the U. V. lamps are commonly known as "Black Lamps". In fact, all the glimmering blue lamps which light the main roads of Madras, and the long-tube-lights, which are quite commonly used in homes, are very good manufacturers of these rays. But, the actual amount evolved by these bulbs is very insignificant since the glass absorbs almost all.

RADIO BROADCAST RAYS are gaining more and more importance in medicine recently due to far-reaching developments in the electronic industry. A recent developmenty midget "Transistor" performing all the complex activities of the much larger 'valve' of the radio receiver. A point of interest is that the surprisingly loud-familiar "Beep-Beep" signals from the sputniks originated from this tiny device. The very small physical size of transistor makes it possible to miniaturize the present day electronic equipment to pocket-

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size versions, and to create new devices facilitating diagnosis. In the near future, everyone of us may expect to own a pocket-size device which will combine the Cardiophone, ECG and EEG all in one unit.

Pharmacutists use capsules as a container for drugs. The modern technicians found another use for it; they fill a special capsule which is sensitive to the hydrogen-ion concentration of the gastric juice with a transistor transmitter. When the capsule is swallowed and descends to the stomach, it emits frequency modulated radio waves, the modulation being in accordance with the acidity of the stomach contents and these shown as different wave-patterns on the screen of a Cathode-ray Oscilloscope, the wave-patterns being interpreted in terms of acidity. How simple when compared to the laborious Fractional Gastric Analysis! When it is possible to do this jugglery, why not put in a subminiature television camera in the capsule, ask the patient to swallow it as a whole, and receive regular TV-shows of the gastro-intestinal tract. Of course, this idea may seem fantastic, but with the rapid advances that are taking place in electronics, it may become perfectly feasible in the near future.

You know that the human body is a generator of electricity. Electricity is generated when a muscle contracts, when an impulse passes through the nerve, when the brain cells are alive and actively functioning, and when the heart contracts and relaxes. The electric potentials thus developed are very minute. Devices which utilize these potentials for investigation and diagnosis are many.

THE ELECTROCARDIOGRAPH is one such device which utilizes the small electric currents produced during the activity of the heart. These electrical variations are transmitted through the tissue fluids from the heart to the surface of the body. By the familiar leads I, II, III, and A-P lead, the current variations are collected and magni-

fied by a valve amplifier. The amplified signal is fed to a Cathode-ray Oscillograph on which the wave-patterns are read, and simultaneously to a mechanical recorder which draws the wave-patterns on a special graph-paper, producing the Electrocardiogram. The Electrocardiograph is used for diagnosing myocardial injuries, bundle-branch block and right and left ventricular hypertrophy etc.,

THE ELECTROENCEPHALOGRAPH is similar to the Electrocardiograph in its construction and action. The two leads are placed over the skull in different positions and the electrical wave-patterns of the brain are recorded. This instrument is made use of in diagnosing local cerebral lesions, epilepsy, infective conditions and degenerative processes in the brain. A recent addition to EGG and EEG is the Myograph. When a muscle contracts energy is liberated, mostly as heat and a little, as an electrical impulse. The Myograph amplifies and records these minute action potentials, and this recording is made use of to investigate any pathological changes in the skeletal muscles from the surface of the body itself.

The electric current, as it is, is utilized for diagnosing certain conditions and illnesses of the body. It is used in the form of galvanic current (direct or constant) derived from a battery usually, or as faradic current (Alternating current). Faradic current is produced by induction coils and is used to stimulate the frog's gastrocnemius in Experimental Physiology. The galvanic current in conjunction with the faradic current, is made use of in testing the reactions of muscles and nerves. Another important application of galvanic current is in electrophoresis of serum. In electrophoresis, two electrical conductors, usually metal plates separated from one another, are dipped in a suitable solution of serum protein and a constant current is passed through the electrodes. The different fractions of the serum run at different speeds towards

one of the electrodes. When the solution is alkaline the protein molecules run towards the positive electrode and vice versa. At the end of this procedure, by a suitable technique, the "electrophoretic pattern or diagram" of the serum can be photographed. The pattern varies according to the different pathological states of the body. Thus some diagnosis can be confirmed by this method. The fastest runner of this protein race is the Albumin due to its light-weight. The Alpha-Globulin; Beta Globulin; and Fibrinogen follow suit in descending order. The tortoise of the race is Gamma Globulin which comes last, and like the tortoise carrying its priceless shell, the Gamma Globulin carries the invaluable immune bodies, which play a vital role in the defence mechanism of the body. So superior is the electrical separation, that the immune globulins and the other components of serum proteins are isolated to a high degree of purity, and the globulins are concentrated to 15-30 times the immune potency of pooled plasma.

Electronic equipments which rely on sound-waves for their functioning are 1. The Cardiophone and 2. the Audiometer. The cardiophone is a smaller version of the public address system, with the microphone placed on the chest. The contact mike receives the heart sounds and the instrument amplifies it, so that they are distinctly audible. The Cardiophone has shown the presence of two heart sounds in addition to the familiar lub and dub, and even the faintest cardiac murmur is heard well with this instrument. The Audiometer tests the range and capacity of hearing of a person. The normal hearing range is between 50-10,000 cycles per sound. The audiometer contains a valve oscillator producing musical notes, whose frequency can be varied manually between the above-mentioned range. It also has a control over the volume of the signal, this signal is fed to an earphone worn by the patient. Persons who are hard-of-hearing, will not be able to perceive the notes either in the upper, or the

lower or even in the normal range. This instrument can be relied upon to give an indication of the stage of deafness the patient is having.

Electricity energizes many more devices like high-speed centrifuges, microtomes, mechanical mixers, kymograph and Starling drums. There are more electrical contrivances available for treatment of an illness, than those for diagnostic procedures.

Man's efforts to discover a ray that instantly kills his enemy, and another ray which immediately cures his sickness, gave to medical service the X-Rays, the ultra-violet rays, the infra-red rays etc., though they do not reach the ideal. But, the ultra-sonic radiations have nearly reached their optimum destructive capacity.

X-Rays and Radium play an important part in the treatment of malignant diseases and chronic infections. They are also used in inflammatory conditions, arthritic states, hyperplasias, for suppression of glandular activity and for the eradication of benign tumours, and as a palliative measure in the malignant reticuloses and in advanced malignant conditions. Cells with a high degree of metabolic or proliferative activity are particularly susceptible to irradiation. X-Rays, due to their ionising property, derange the molecular arrangement of the constituent chemical compounds of the cell and thus bring about cellular destruction. X-Rays are applied as external or intracavitary irradiation. Radium is used for interstitial, as well as for external irradiation. The radio-active Isotopes are used in healing the sick too, radio-active Iodine is a very good therapeutic agent against Thyrotoxicosis. The Iodine required for the therapeutic destruction of Thyroid tissue is calculated and administered, the Thyroid gland selectively concentrates the radio-active Iodine, and the radio-activity destroys the cell and plays its part in effecting a cure. Radio-active Phosphorus is being tried in leukaemias. Radio-active Cobalt gives out high-energy rays comparable with Radium emanations. So, it is used for external

irradiation by means of a "Cobalt Bomb Beam", or for interstitial radiation by needle implants in the treatment of certain types of carcinomas.

The sun's rays contain a high concentration of Ultra Violet rays, but only a tiny fraction of the total reaches the surface of the Earth, because most of them are absorbed by the Ozone layer of the atmosphere. It is that small amount which reaches the lower layers of the atmosphere and purifies it. Ultra-Violet light is a very potent killer of bacteria. This property is utilised by water-supply systems to render drinking water free from bacterial contamination, and by the pharmacutists to keep medicaments and vessels in a sterile state. This ray may be called a 'Vitamin manufacturer' for it reduces Calciferol in the deeper layers of the skin to Vitamin D. UV-radiations are specially useful in deficiency diseases. It confers increased resistance to infections ailments, and is also used for its general tonic action.

Infra-Red rays make a person red in the face on exposure to it, due to vasodilation of surface vessels. It is superior to hot fomentations in its ease of application and its effect, but the effect is only superficial. It is of great value

1. In the treatment of septic wounds,
2. In counteracting surgical shock,
3. For the restoration of function of organs of the body after injury or infection,
4. In a great variety of inflammatory conditions such as rheumatism and neuritis.

Even the short waves, which are utilized in radio-broadcasting systems, are used for the production of heat within the body. The wavelength of the radio-waves used, ranges between 30 metres and 1 metre. The group of waves with lengths below 10 metres are known as ultra-short waves, and the television waves fall in this category. Short-wave therapy produces heat in the more deeply placed tissues, and in this respect it scores over

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IR-rays. Short waves are used for the treatment of inflammatory diseases involving skin, mucous membrane (nasal sinuses), glands, muscle, nerve, bone and for stimulating healing of wounds.

The current that comes out of most of the house mains and from the induction coils is alternating current. Alternating current of different frequencies, is used in Medical and Surgical diathermy. In Medical diathermy, two electrodes of considerable surface area, are applied to the required part of the body and the current is switched on. The current passes from one electrode to the other, chiefly in the plane of subcutaneous or deep fascia and produces heat which is largely confined to those tissues lying close to the electrodes. It is used in the treatment of rheumatic manifestations, arthritis and gonococcal lesions.

In surgical Diathermy, there are many variations. They are 1. Electrocoagulation-used for treatment of innocent and malignant growths. 2. Electro-desiccation-used for the destruction of warts and painful corns, and 3. Acusection-this is also known as surgical cutting. It is the modern surgeon's knife, with a far keener blade, performing the double function of cutting, as well as sealing small blood vessels and lymphatics. A very high frequency current fed to the diathermy needle or loop makes it behave like a scalpel.

The Electric Cautery utilizes alternating or direct current. In it, a platinum loop is brought to dull red heat by electricity, and is used for sealing blood vessels and removing small tumours of the skin and mucous membrane. Galvanic current is utilized in "Iontophoresis"-an ionizing technique-to drive Zinc, Iodine and Salicylate ions into the body through the skin surface, in the treatment of rheumatic conditions and injury. Another use of direct current is in the miniature carbon valve or transistor hearing aids in which a small battery is used for supplying current.

When electric current passes through a wire

offering high resistance, the wire is heated. The heat produced is made use of in appliances, such as, the electric bulb, the heater, the hot-air oven, etc. The hot-air oven is used for dry-sterilization and for growing bacterial cultures. The other uses of electricity are in electric convulsive therapy, which is undertaken for persons suffering from fits of mental depression, and in the induction of sleep and anaesthesia.

But in our pride we must never forget Pierre and Marie Curie, to whom the world should pay eternal homage for their selfless devotion and work that made possible the discovery of Radium—the basis of all radiological procedures. It is but an irony of fate, that Marie Curie, who was the co-discoverer of Radium, should die a martyr to the evil genius of the element

she had discovered for the benefit of suffering humanity.

Due to the discovery of Antibiotics and other wonder drugs the physicians claim that all the diseases can be tackled by medicine alone, and sarcastically explain the work of the surgeons, as surgical 'interference'. The recent refinements in surgical technique make the surgeons resort, that all the ailments will be treated by them in the near future to give a definite and permanent cure, causing the physicians to dwindle away due to lack of employment. The fast-increasing use of Electronics in the medical profession makes one think that the Electronic technician is insidiously pushing both the physician and the surgeon out of the divine art of healing the sick. ★



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Intracranial Aneurysms and Subarachnoid Bleeding

While learning the fundamentals of medicine it is often worthwhile having an idea of how the science of medicine is advancing in various directions. The attempts by pioneers in various fields, to solve various difficult problems afflicting mankind, serve always as a source of inspiration for young medical students. The struggles and difficulties that pioneers face in any field are numerous, and make fascinating reading.

The most recent advances in the field of surgery of the brain has been the treatment of Subarachnoid haemorrhage. Subarachnoid haemorrhage has been recognised only for the past seventy or eighty years. Before that it was confused with intra-cerebral haemorrhage which is commonly known as cerebral-apoplexy.

It was only in the 17th century, that Thomas Willis (1621-1675) and Bruna (1653-1727), and Morgagni suggested that small dilatations of the cerebral blood vessels may have something to do with apoplexy. In spite of a large number of papers being published during the 19th century, the general body of medical men did not recognise or associate intracranial aneurysms with intracerebral or subarachnoid bleeding. It was only in the early part of this century that the clear correlation between subarachnoid haemorrhage and intracranial aneurysms was firmly established by Collier's classical account in 1922, and by the reviews by Symonds in 1923 & 1924.

Haemorrhage into the subarachnoid space is caused by a blood vessel rupturing into the subarachnoid space. This is usually due to a small aneurysm in the blood vessel in the

younger group of patients. In the older age group it may also be due to congenital aneurysm, but the feature of arterio-sclerosis also comes into the picture. Small aneurysms are due to congenital weakness in the medial muscular wall of the cerebral blood vessel leading to a protrusion of the wall of the blood vessel. This may go on throughout life without endangering the life of the person. But sometimes due to various known and unknown reasons this aneurysm ruptures. The progress of the case depends upon the size of the aneurysm and its site. When a big aneurysm ruptures and there is an enormous quantity of blood thrown into the subarachnoid space it may end fatally. Sometimes the aneurysms may rupture partly into the subarachnoid space and partly into the brain. When the blood leaks into the brain it forms an intra-cerebral haematoma and may cause severe fatal pressure on the brain. Occasionally this haematoma may also burst into the ventricle, causing fatal intra-ventricular bleeding. Very often it so happens that the bleeding occurs slowly into the subarachnoid space.

When the aneurysm begins to bleed, symptoms are caused by the presence of blood in the subarachnoid space. This is chiefly manifested by the occurrence of a very severe headache, sudden in onset. The patient may lose consciousness for a few minutes or for a long time, loss depending upon the size and site of the bleed. The headache persists and may spread from the temporal region, or the frontal region to the back of the neck and also along the spine to the lumbar region. This headache and pain in the neck and the back is due to the presence of blood irritating the meninges.

The headache may persist for a few hours or more likely for a few days. In addition to the presence of pain and headache, the patient may exhibit occasionally other neurological signs that may give a clue to the site of the subarachnoid haemorrhage. There may be a third nerve paralysis, or disturbance of vision on one side, or there may also be presence of weakness of one limb or the other. Occasionally an aneurysm may manifest itself solely by a focal neurological lesion when the leak is minimal.

Diagnosis. Diagnosis of a subarachnoid haemorrhage is chiefly made from the history of the case and is confirmed by lumbar puncture. In any case of sudden severe headache (occurring almost like a bolt from the blue) lumbar puncture is an essential procedure. The lumbar puncture reveals blood uniformly mixed with the cerebrospinal fluid. If the lumbar puncture is performed later than 24 to 48 hours after the onset of the attack then actual blood may not be seen in the cerebrospinal fluid, but it may be coloured yellow and may have a very high protein content.

At this juncture, I want to stress one fact—namely the RARITY WITH WHICH SUBARACHNOID HAEMORRHAGE HAS BEEN DIAGNOSED IN THIS PART OF OUR COUNTRY. In the General Hospital records there are only a few cases of subarachnoid haemorrhage. This may be due to the rarity of subarachnoid haemorrhage among us, but probably is more likely due to our not diagnosing this condition. This matter is worth your attention, specially because a definite diagnosis of the type of aneurysm is possible by modern methods and curative surgical treatment can be adopted.

When the case is diagnosed as a subarachnoid haemorrhage the course of further treatment has to be decided. If the patient is acutely ill only conservative measures are to be adopted for the first 24 to 48 hours.

Cerebral angiography is absolutely essential in every case of subarachnoid haemorrhage. I

prefer to wait at least two to three days after the onset of haemorrhage before advising a cerebral angiogram. Most of the Neurosurgical Centres in the world follow a similar procedure, though there are certain differences of opinion. The need for cerebral angiography is to diagnose the site of the haemorrhage, so that further definite surgical treatment may be decided upon. Cerebral angiography is performed on both sides. If there are any focal neurological signs the angiogram is done on the corresponding side. If on finishing the angiogram on one side no aneurysm is visualised, then the procedure is repeated on the other side. If bilateral carotid angiography does not show any aneurysm, it may be necessary to do a vertebral angiogram. After the investigation is completed the treatment is decided upon, depending upon the site of the aneurysm.

It was John Hunter who enunciated the principles of arterial ligation for treatment of aneurysm. He ligatured the femoral artery in the thigh for popliteal aneurysm. (The site where he ligatured the artery is known as Hunter's Canal.) Applying similar principles for treatment of intracranial aneurysms, carotid ligation in the neck has been practised with success for a long time. The operation is simple and the results fairly good. But when the aneurysm arises in the circle of Willis, recent experience has shown that a direct operation on the aneurysm gives better and more lasting results. The skull is opened by a suitable flap, the aneurysm is exposed and clipped. Sometimes if the main vessel on which the aneurysm is situated can be spared, then that vessel may be clipped on either side.

In the direct surgical treatment of aneurysms inside the cranium, some important advances have been made. While operating on aneurysms, if the aneurysm should burst, it becomes necessary to occlude temporarily the main vessel leading to the aneurysm. The occlusion may have to be maintained for some minutes, and so the part of the brain supplied by the occluded vessel suffers from lack of

oxygen. Nervous tissue needs the most oxygen of all the tissues in the body, and cannot stand lack of oxygen for more than a minute. Hence if a main vessel is occluded the patient may become permanently paralysed.

This occurs only at the normal temperature of the body (36°C.) It has been found from animal experiments that if the temperature of the body is lowered to about 27° centigrade, then the brain is able to stand anoxia for almost as long as 10 to 14 minutes. You will well realise what this excellent discovery means. In cases of vascular aneurysms, when operating under hypothermia, there is no need to be worried if the aneurysm happens to burst. The main feeding vessel can be clamped for a few minutes, and the aneurysm dissected with ease without any fear of any permanent neurological deficit. Thus hypothermia has been a great advance in the treatment of intracranial aneurysms. The results of surgical treatment during the past ten years have been carefully followed up in many centres all over the world, and it has been found that surgical treatment offers a better chance of permanent cure for these patients than conservative treatment. In cases where cerebral angiography does not reveal the presence of any aneurysm, then

conservative treatment is to be followed and in these cases the results are good. But if conservative treatment is adopted in a case where a definite aneurysm has been demonstrated by the angiogram, then the risks of a fatal recurrence of haemorrhage are very great indeed. The risk of recurrent bleeding are about 75 per cent within the first two weeks. If the patient survives these two weeks then the chances of further bleeding are less. It is in such cases where there is a great risk of subsequent haemorrhage that surgery is a useful procedure.

Advances in the surgery of the nervous system have taken place because of advances in the methods of anaesthesia. As intracranial aneurysms occur in otherwise normal healthy young individuals it is worthwhile paying attention to the diagnosis of these cases and to the proper methods of treatment, so that a completely healthy individual may be restored back to useful work.

In this paper I have tried to show one aspect of advance in medical knowledge whose horizon is ever widening. A glimpse into the future possibilities of medical knowledge serves to inspire us to a greater effort in alleviation of human suffering. ★

DIVORCE COURT STATISTICS

You Can't satisfy your Wife !

If you go away on a trip and forget to bring her back a present, she thinks that you no longer Love her !

If you do bring back a present she is suspicious ?

If you come home late from the office, and she asks you what kept you, and you tell her the truth, she doesn't believe you !

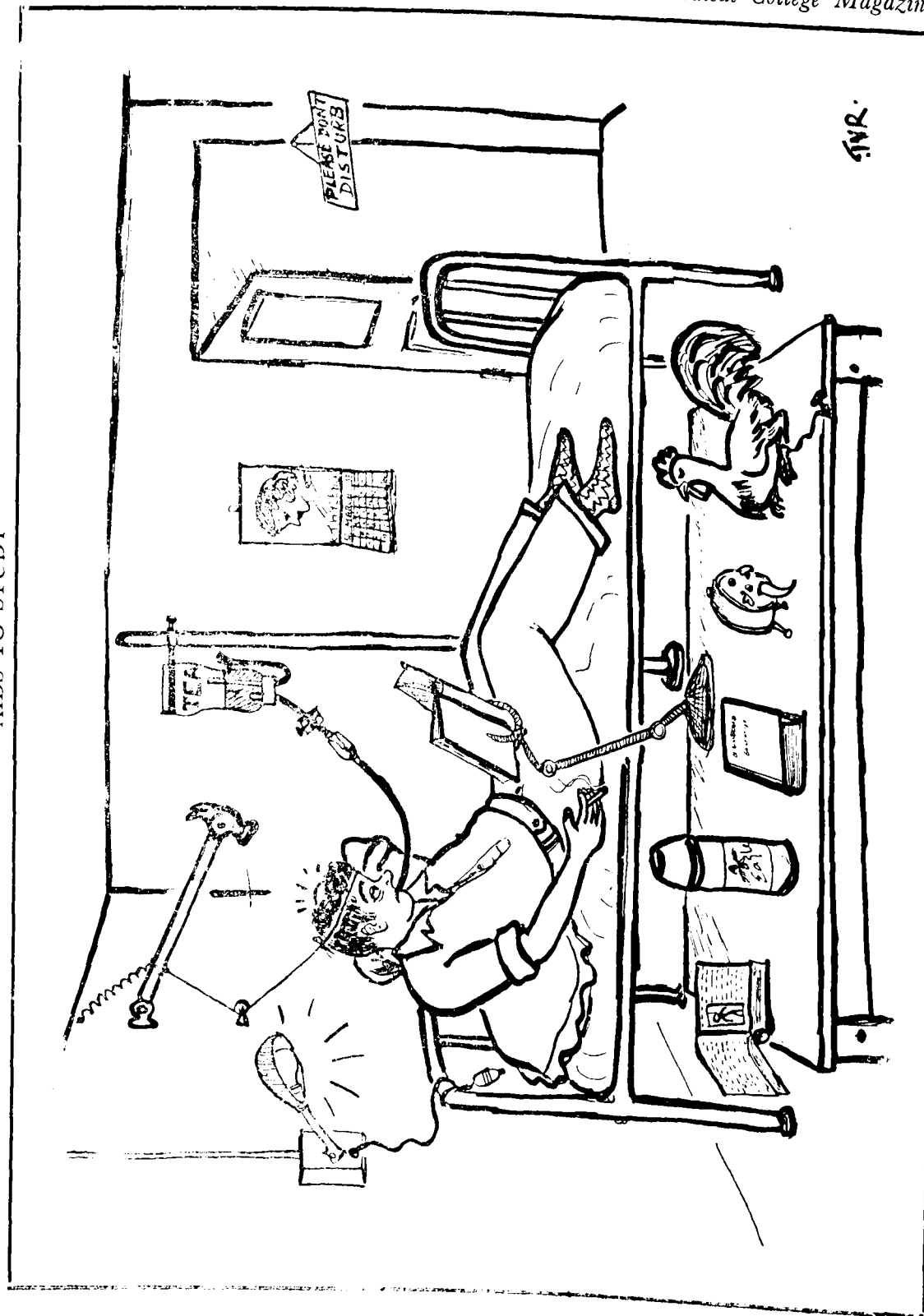
If you tell her a lie, she finds out !

If you come home full of pep and energy,

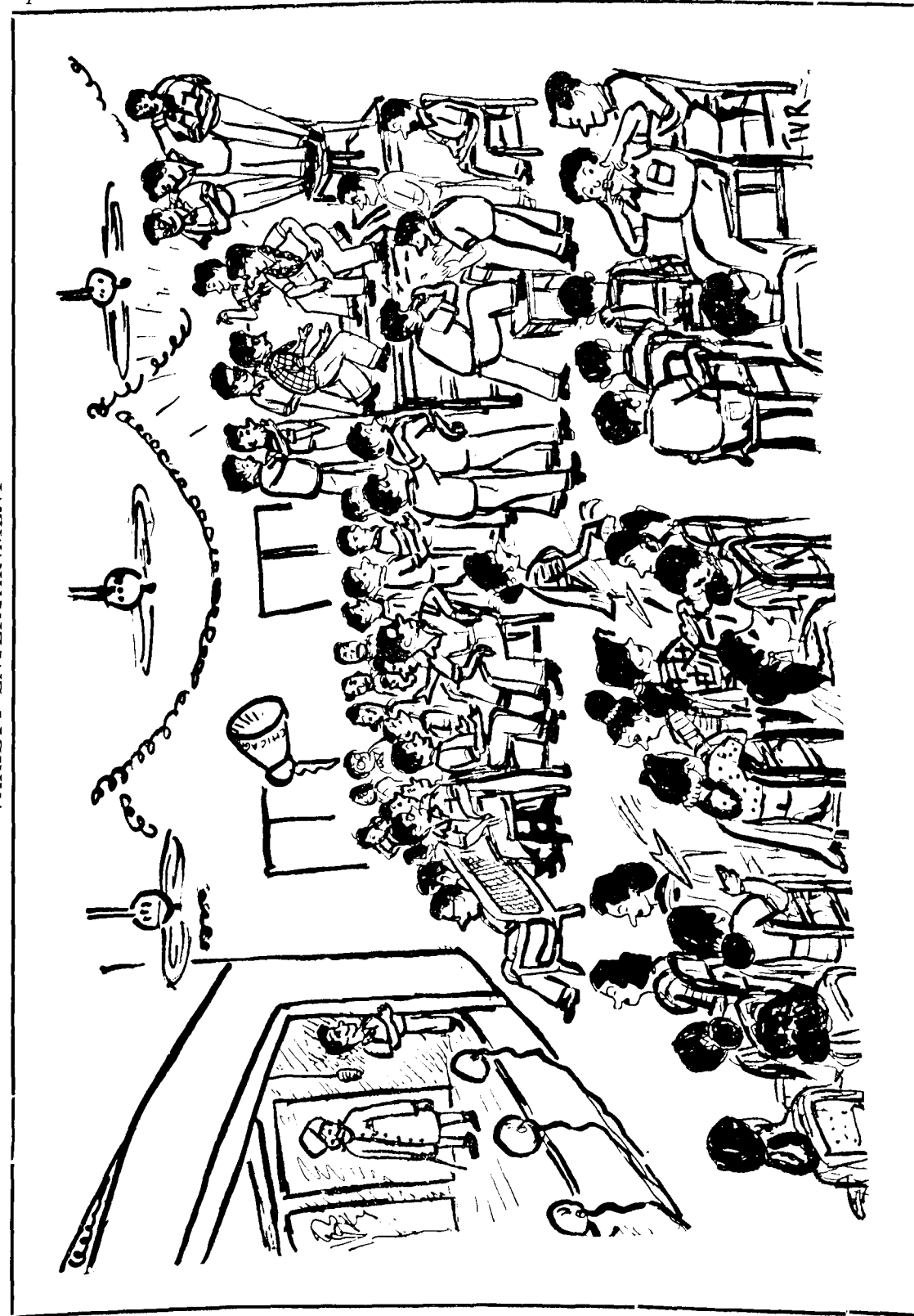
She knows what you want.

If you come home tired and listless,

She thinks that you've already had it !



VARIETY ENTERTAINMENT



Prayer and Invocation

“ May the Love for my art
 actuate me at all times,
 May neither avarice, nor miserliness,
 nor the thirst for glory,
 Nor for a great reputation
 engage my mind ;
 For the enemies of Truth and Philanthropy
 could easily deceive me
 And make me forgetful
 of my prayer,
 Of my lofty Aim of doing
 good to thy Children.”

Maimonides,
 the “ Jewish Physician.”

Dr. C. W. CHACKO, M. B. B. S., D. T. M.,
 Ph. D., (London)
 Serologist and Associate Professor of Serology,
 Institute of Venerology, Madras Medical College

Penicillin Resistant Staphylococcus

The introduction of antibiotics, beginning with the discovery of Penicillin, has been one of the significant advances in our medical practice during the last decade. We have managed to eliminate some diseases as serious entities, with the use of these most remarkable antibiotic agents. However, simultaneously with this benefit to human health, there have appeared problems, not the least of which has been the appearance of strains of Staphylococcus resistant to penicillin.

When Penicillin was introduced in clinical therapeutics, first against a case of staphylococcal infection, it was found to be extremely effective against this microorganism. As a result, the mortality rate from staphylococcal septicaemia was sharply reduced during the subsequent extended use of penicillin. But within a decade, it was to lose much of its therapeutic value against staphylococcal sepsis and in spite of the introduction of other antibiotics of wider spectrum, the mortality rate from staphylococcal septicaemia has now approached 50 per cent. Many of these disappointing clinical results have been proved to be due to the appearance of strains of staphylococcus, fast to the antibacterial action of penicillin. It is an irony, that FLEMING discovered penicillin by observing its remarkable destructive action first on staphylococci and that, the same microorganism would be first in exposing the limitations of this ‘wonder drug’. The staphylococcus has proved, in fact as the most consistent, in exhibiting prompt resistance to each new antibiotic discovered and introduced. Therefore, this particular species of bacteria, and the infections with it, poses the most serious

clinical problem of antibiotic resistance in our medical practice to-day.

Staphylococci flourish freely in our environment as pathogens, or as saprophytes. They are one of the commonest causes of our infections. They produce diseases both through their ability to multiply and spread widely in tissues, and through the production of toxins and many other extracellular factors, including Exotoxin, Enterotoxin, Leucocidin, Coagulase, Hyaluronidase, Staphylokinase, Proteonase, and Lypases. The pathogenic capacity of staphylococci covers a wide scale. At one end is staphylococcal food poisoning and at the other end is the staphylococcal bacteraemia and disseminated abscesses in all organs. The problem facing the clinician is the significance of staphylococci isolated in culture, from exudates or body fluids from febrile patients and how the saprophytes may be differentiated from pathogens. The ‘Coagulase test’ provides a simple and practical method of distinguishing pathogens from non-pathogens. The pathogens are usually ‘coagulase-positive’.

Major human reservoirs of staphylococci are the nasopharynx and the skin. Fifty percent of healthy adults may harbour staphylococci aureus in their anterior nares and 20% in the skin of the wrists. The immediate environment of carriers, including his contacts, clothing and air, is rapidly contaminated by staphylococci by cross infection.

Advances in our knowledge of the epidemiology of staphylococcal diseases have been brought through the identification of various strains of pathogenic staphylococci by means of

a staphylophage (bacteriophage) typing technique. While only 50 to 70% are typable at present, the technique has become very useful in studying problem of the epidemiology of penicillin resistant staphylococci.

The staphylococcus is a very hardy, complex, unicellular organism. Its adaptability is so elastic, that by a process of nutritional attrition, it can be trained to synthesize its own amino-acids for its protein requirements from a few simple salts. Therefore, a simple or a single explanation cannot be available as to why and how this bacterium exhibits resistance to penicillin. There are probably several different mechanisms involved.

Bacterial resistance is an expression denoting the universal phenomena of life 'adaptation'. In the process of 'organic evolution' and in the struggle for survival against the impact of antibiotics, selection of new strains of bacteria has resulted, following Darwin's principle of 'survival of the fittest.'

By virtue of this phenomenon of 'adaptation', a large bacterial population of staphylococci can contain a rare mutant or variant of it, possessing the property of resisting the action of an antibiotic. Penicillin 'selects' out and kills the preponderantly sensitive cells, permitting the resistant cells, the opportunity to reproduce and eventually present a uniformly resistant strain. This appears the most probable explanation of the rapid rise in highly resistant culture of staphylococci in human population, after the wide spread use of penicillin.

This inheritable or 'genetic form' of resistance, is probably of major importance to the clinician, since it involves strains which after several generations, can displace the more sensitive cells, with a stable and highly resistant culture. These strains have been found to be regular producers of an enzyme called 'penicillinase' which inactivates penicillin. All penicillin resistant staphylococci isolated from human beings have been practically

always 'penicillinase' producing strains. By means of 'bacteriophage typing' in various parts of the world, it has been shown that the majority of penicillin resistant strains of staphylococci fall into one group, namely 'group III'. Apparently the appearance of resistant strains, on a genetic basis, occurs only with a selected few strains within a group.

Bacterial resistance may represent a metabolic adjustment to an unfavourable environment created by penicillin through enzymatic activity of the staphylococcus. This is of a temporary non-inheritable nature, and does not involve the production of penicillinase. This method is of interest only because of the various alterations in morphology and metabolism the resistant cocci may manifest such as, 'G' forms of staphylococcus characterised by the colony size being too small to be easily spotted in cultures of exudates and body fluids of them, and thus considered sterile. It is easy to render staphylococci reversibly resistant to penicillin in-vitro too. Such resistant strains also do not produce penicillinase and therefore seem to be different in origin from penicillin resistant staphylococci isolated from patients and staff in hospitals, which are uniformly penicillinase producers.

This subject has been investigated extensively by workers in this field abroad, and it has been recorded that major problem of penicillin resistant staphylococcus is one that concerns 'hospitalized patients', and it is related to the extent of use of the antibiotics in the hospitals. In a survey in the U.S.A. it has been found that penicillin resistant strains of staphylococci isolated from university students was 8%, from hospital outpatients 29%, hospital-dust 53%, hospital inpatients 73%, hospital staff 80%.

The incidence of penicillin staphylococci among hospital patients is considerably lower when cultures are taken at the time of the patients admission than at the time of their discharge from hospitals.

The percentage of penicillin resistant staphylococci isolated from patients in the hospitals in various parts of the world during the last few years has increased steadily, and in most of them about 75 p.c. of all such strains are now highly resistant to this antibiotic.

Penicillin resistant staphylococci have been found not only in suppurative lesions of patients under penicillin treatment, but also in cultures of the nose, throat and faces of patients in the same hospital, even when they are not under treatment with penicillin.

A similar proportion of staphylococci isolated from the nose, throat and skin of hospital personnel, and from clothes, linen, blankets and air of the hospital wards, are also penicillin resistant.

Epidemiological studies with staphylophage typing techniques, have suggested that penicillin resistant staphylococcal infection arises in hospitals as a 'cross infection', either from other patients or from hospital staff.

The incidence of penicillin resistant staphylococci, isolated from the outpatients, in striking contrast to the inpatients, is lower by half to one third. Among the outpatients too, this incidence has been found to be related to previous penicillin treatment, or to continuous contact with inpatients.

As regards the resistance of staphylococci in patients treated at home, some increase in resistance has occurred and also does occur, since the proportion of resistant staphylococci in those who come for treatment as outpatients, or as inpatients, is appreciably higher than in the community at large, where environmental conditions are not conducive to perpetuation and dissemination of penicillin resistant strains of staphylococci. However hospital personnel do not confine their activities to hospital environment, they possibly carry and disseminate penicillin resistant staphylococci in their homes and the community at large. Although the problem of penicillin resistant staphylococci has its focus in hospitals, there is considerable

amount of penicillin used on patients in urban areas outside hospitals. Therefore, the problem of resistant strains of staphylococci has become an ever expanding one.

The frequent finding of penicillin resistant staphylococci is not merely an interesting laboratory observation. It has had its reflection in the increased occurrence of severe, often fatal infections that may resist penicillin therapy. Staphylococcal endocarditis, superinfection in urinary-tract-infections, upper-respiratory tract infections and pneumonia with penicillin resistant staphylococci, and staphylococcal meningitis and gastro-enteritis, have been reported with increasing frequency from abroad lately. This new danger of resistant staphylococcal infection may have serious repercussions in aseptic surgery. The tremendous advances in the various fields of surgery, such as neuro, cardiac, and lung surgery, made possible on the advent of antibiotics, particularly penicillin, are likely to receive a set back in the current situation, when hospitals are likely to become reservoirs of resistant staphylococci.

While considerable research and survey on this subject has been carried on abroad, and many reports of them are available from foreign medical journals, reports of similar surveys or researches done in India have been remarkably few, if any. This problem must be there in our hospitals too, with the ever increasing use of penicillin in our medical practice in the country. A survey, on the lines done abroad, would reveal the extent of the problem here, and it should not be difficult to carry out with the availability now of simplified techniques of isolation, phage-typing, antibiotic sensitivity and virulence tests of staphylococci, within the capacity of our Bacteriological laboratories.

In the Institute of Venereology, although we are not dealing with staphylococcal infections directly, a significant number of cases of sepsis with penicillin resistant staphylococci

have been observed in the course of our routine treatment of syphilis with penicillin. During our recent observations on this problem and researches on our patients, we have isolated at least 8 strains of coagulase-positive staphylococcus aureus, resistant to penicillin in-vitro and in-vivo. They are being maintained with care in our laboratory for the interest they might provide us in future.

As very high levels of penicillin resistant staphylococcus have appeared, its cross-resistance to most other antibiotics have also been noted. This cross resistance also seems to be related to the extent to which the new antibiotics have been used. It has been reported that among hospitalized patients, almost all strains of staphylococcus which are resistant to streptomycin and tetracyclines are also resistant to penicillin. Many penicillin resistant staphylococci are also resistant to streptomycin and tetracyclines. Resistance to chloromycetin seems relatively less frequent than tetracyclines, probably because the former is less frequently used. Erythromycin and carbomycin resistance is being found more and more frequently. Bacitracin and neomycin are very effective against staphylococci, but resistance to them is no longer a rarity.

A most effective mycin against staphylococci is reported to be 'Novobiocin', but resistance to it has already developed in laboratory studies. If penicillin resistant staphylococci are susceptible to the action of new antibiotics, it should be a matter of prudence that they are also not used indiscriminately.

Methods of preventing, at least causing delay, in the emergence of resistant staphylococcus should be on the following lines.

The routine and indiscriminate use of penicillin should be eschewed. There is no rational indication for the use of penicillin in aseptic surgery either preoperative or post operative. In a hospital with laboratory facilities, the decision to use penicillin in a particular septic or infected case, should be

preceded by laboratory proof of susceptibility of the organism to the antibiotic. In emergency cases, penicillin may be administered while the antibiotic susceptibility of the organism concerned is carried out at the same time.

The amount by which penicillin consumption need to be reduced in order to produce a significant fall in the number of resistant strains of staphylococcus may not be as great as one would at first envisage. We may compare the situation to the control of other biological balances, such as an epidemic of an infectious disease. There, in order to prevent large outbreaks, they do not try to maintain a completely immune population or eliminate a parasite completely, but try to maintain the number of infections by these procedures, below a certain threshold level for each disease, when epidemics are not likely to occur. Similarly, it may well be, that a relatively minor reduction in the amount of penicillin used, still within the demands of sound and legitimate therapeutics and prophylaxis, may lower the threshold of the population susceptible to this implantation of penicillin resistant strains of staphylococci, to achieve a major reduction in the number of such cases.

The simultaneous use of two or more antibiotic agents has been found to be effective in many instances. If the resistant organisms emerge by selection of mutants, the use of 2 unrelated antibiotics will provide a barrier against the emergence of any mutants, except those in which resistance to both has been acquired at the same time. In addition, the combined therapy may be associated with synergistic action. The converse effect, namely antagonism, however, may also be found on the use of some combinations of antibiotics.

The problem of treatment of staphylococcal infection does not seem to be controlled by the discovery of new antibiotics. It is possible that there may be an end to the discovery of new ones sooner or later. In such circumstances, it appears reasonable to concentrate on

penicillin itself, and search for possible methods and materials to inactivate the enzyme 'penicillinase' which is concerned with the destruction of penicillin by resistant staphylococci. Penicillin is still an effective agent comparatively, in those instances where the bacteria are sensitive to it. It may be, that the future of therapy of staphylococcal infection may well rest with synthetic antibacterial chemicals, in which we have endless scope for making new ones comparatively, than in antibiotics.

The spread of staphylococcal by 'cross infection' in hospitals may be restricted by adhering to the strict aseptic methods of "Lister" and other rigid control techniques in

the handling and care of patients such as 'cubicle isolation' barrier nursing, and positive pressure ventilation and use of Germicidal-lamps in operating-theatres. While we are attracted to the interesting phenomenon of the 'parasites' resistance to drugs, let us not forget the central figure in this problem, namely the 'patient host,' his environment and defensive mechanisms.

Finally, a plea is made for initiating a survey of the incidence of staphylococcal infections in the General, the Women and Children hospitals in the city, to determine the percentage of penicillin resistant staphylococcal infections. For, as 'The Lancet' has put it, "Staphylococci are threatening to become the modern hospital plague". ★



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Goats

I am sure that everyone will be familiar with the name of this herbivorous quadruped and would have seen at least two or more varieties. I also had heard of Australian goats, Mountain goats, Billy goats, Algerian goats, and nine-hundred and ninety nine other species before joining the Madras Medical College, but take it from me friends, I never knew that such a thing as Human Goats existed until I entered the portals of the Madras Medical College.

The first time, but it was by no means to be the last—I heard of this biped species was while I was climbing the stairs of the 'Red Fort', on my first day in the college. A huge, fat guy came rushing down the stairs reminding you of an avalanche you see in the pictures—on seeing me he managed to stop himself with some difficulty, and then he surveyed me from head to toe; suddenly he squeaked out, "Hey Goat Were you not taught to wish your superiors Good Morning when you were in the Kinder-Garten?"

I bristled with righteous indignation, all traces of my self-consciousness disappearing and retorted, "My name Mister is—, and not Goat", putting a lot of force and sarcasm into the word 'Mister'. Since I was accompanied by a couple of my tough looking friends, fatso risked no further words, just gave me a foul look and continued his descent.

That same evening, smirking with the thought that I had got the better of at least one of the 'wise' seniors, I was staring contentedly at the ripples in the fountain when I was disturbed from my reverie by a violent push from behind, and found myself wallowing in the muck of the fountain. I waded out of the water, and searched for the rotter who had

the termerity to push me into the fountain, but the bounder was no where to be seen. However, I knew that it could only be fatso. Then I proceeded to fish out my books and purse, and took refuge in the cycle stand congratulating myself that none of the fair sex had seen the unhappy incident. When I reached home bedraggled and wet, my sister came out with this nasty comment, "You look like a wet goat". I only gave her a withering look and went to my room.

The next morning the fat guy met me, and solicitously enquired whether I had enjoyed the swim the previous day. Remembering the old adage 'Discretion is the better part of valour', I answered, "Yes Doctor".

Having suffered the bantering of the seniors for more than six months and being promoted to the second year (luckily no exams), I no longer considered myself to be a goat, and spent my time ragging the freshers who joined the college in August. I was under the impression that since I had established myself as a senior, no person had the right to call me a goat. But in this I was sadly mistaken for in my ignorance I did not know that the biped species was subdivided into preclinical and clinical goats.

With a lot of luck and a little cramming I succeeded in duping the examiners to the extent of my knowledge, and thus they ordered my release from the 'Red Fort' probably thinking that the 'Fort' was better off without me. So I became a third year junior and my first posting was in the surgical ward. On the first day, armed with a stethoscope, knee hammer, and of course Das, I rather self-consciously entered the ward. There was also some final years posted in the same ward, and

one of them seeing me exclaimed, "Here comes the first goat."

I was so surprised comrades, that you could have knocked me out with a feather. There I was thinking that I had bid good-bye to that obnoxious term, only to find that it had followed me to the wards also. All I could do at that moment was to pretend that I had not heard those painful words, give my attendance and slip out of the ward without the assistant seeing me, and console myself with a cup of Ninan's incomparable coffee.

Although I had been called a goat innumerable times, and had myself called many of my friends by that very same name, I had never understood why we freshers were called goats, and in spite of the most diligent and exhausting enquiries all the reply I could get was a non-committal shrug of the shoulders from the old timers.

Now I am in the final year, I have had the privilege of watching several sets of Goats, and the long period of observation has aided me in deducing these postulates:



1. They carry a stethoscope to the surgical-wards. (I was no exception).

2. As the seniors, house-surgeons and assistants scuttle around when the boss arrives, the Goats non-chalantly carry on with their chatting and joking, with only a passing glance at the all important Bosses.

3. At least half a dozen Goats (especially the female of the species) in each batch faint on their first day in the operation theatre.

Let me finish my tale of goats by alluding to an interesting and humorous incident that occurred in the Medical O.P. A man complained of inability to use his lower limbs. Worded in Tamil the complaints were very suggestive of a paralytic lesion. Our friend the goat, without pausing to go into the history, launched into a systematic examination of the central nervous system.

All went well till the knee jerk was elicited; the patient howled with agony and his leg shot up like a Sputnik. The goat rebuked the patient for making a fuss over trifles, and sagely nodded his head murmuring to himself complacently "Exaggerated reflexes; upper motor neurone lesion", and he proudly came out with the diagnosis of hemiplegia. He was so sure of his infallible diagnostic powers

that he presented the case to the boss. The latter, wise in the ways of students, enquired of the patient about the history of the complaint, who came out with the typical history of flitting and fleeting pain affecting the large joints with frequent previous attacks. As the diagnosis of acute rheumatism was written on the O. P. chit, all the students burst out in peals of laughter-except the poor Goat and who do you think was that Goat? Nobody else but I!

★

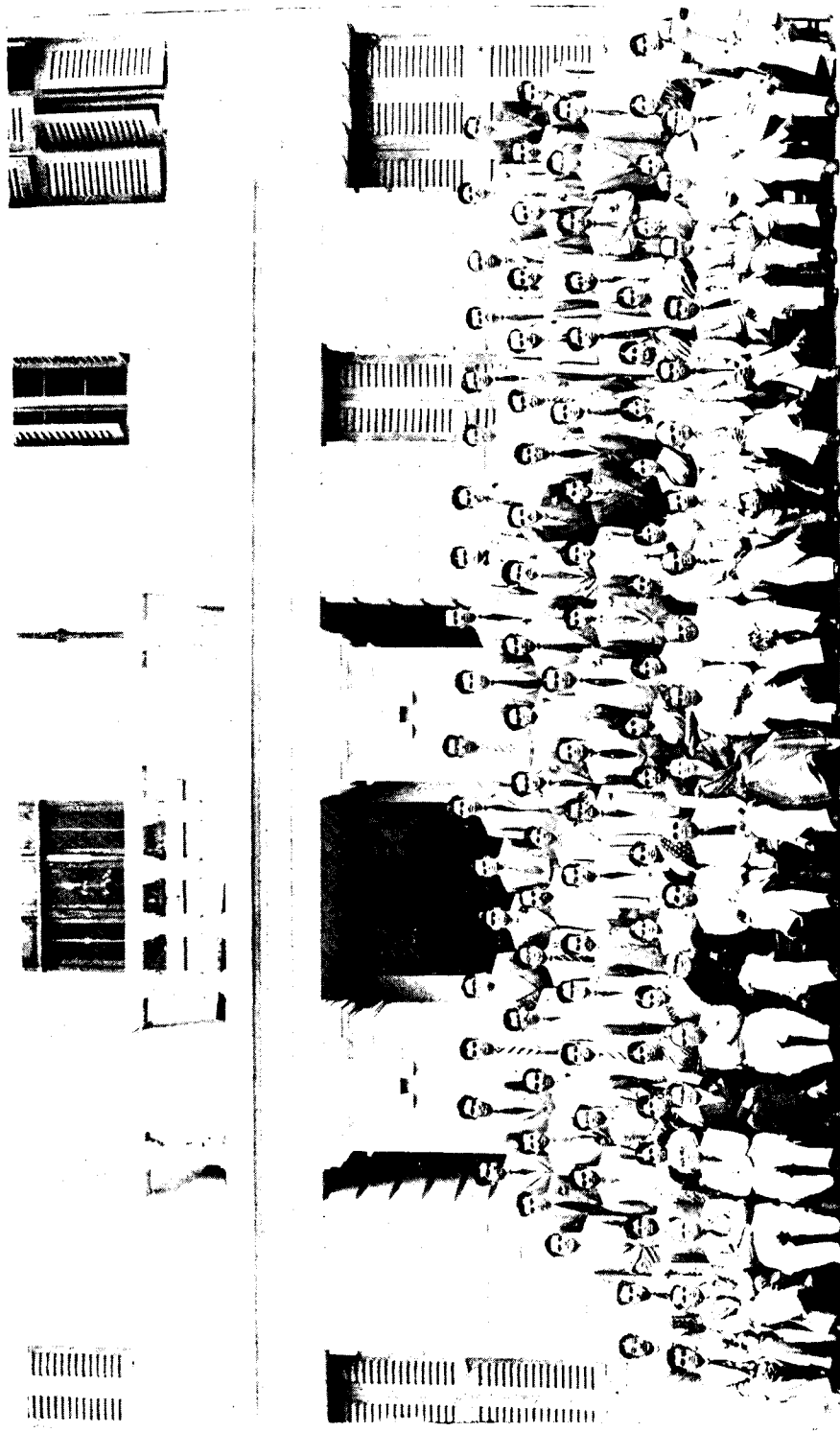
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GRADUATES OF THE YEAR 1957—58

J. SANATH KUMAR

Some Sidelights of Photography

Our ancestors drew pictures on the walls of Caves; Michelangelo painted on the walls of the Sistine Chapel, and last Sunday my friend Mr. X made an interesting topographical study of his girl-friend Miss Y with a miniature camera.

Though their subjects are of varied interest, all these people used the same media for their views—the graphic form of expression. They used the graphic form as a means of communication to tell others what they saw. So the caveman's scribbling with charcoal, Michelangelo's immortal paintings and the miniature photograph of Miss Y are individualistic expressions on a common media, or, they interpreted in different ways each using a different tool to give form to "objects as they saw it."

To-day we come across people who use different media to convey their expression—the artist uses the brush and paint, the writer uses the ink and paper, the sculptor uses chisel and hammer, the lace worker uses the needle, the builder uses the slide rule and the Presleys' convey through Rock-n-Roll (if it can be called a form of expression).

In this modern world where we come across people, problems and progress we always look with discerning eyes for the man who does things, and we believe in what we see. Based on this simple fact, seeing is believing, the photographer does his work using his own tools, the basic one being a light tight box, often com-

pared to the human eye, but which retains the image of objects on a sheet of chemical coating for a much longer period without losing the details.

It is admitted that people give more attention to a photograph than to written words. This is reflected all around us, in newspapers, films, advertisements, magazines, books etc., where great importance is given to the number of photographs. As the number of photographs increases the sales value also goes up. Nothing

expresses the idea better than a good photograph. Photography with all its costly geegaws has established itself as 20th Century's most vivid form of expression and there is nothing around the corner to displace it, as the world's No. 1 media of expression.

Behind every photograph are two things—one animate and the other inanimate. A

good photograph is a correct mixture of the two. The inanimate factor is the camera, which sees objects in an impersonal, business like manner, missing no details in its angle of vision. We may regard a lecturer in a respectable manner as the wise academician, holder of high academic degrees and who tolerates no indiscipline. But what the camera frames is altogether a different man—a middle aged, careworn person, with the lines on his face betraying his frustrations and ambitions. The result looks as if the camera has picked up every vulgar detail of the man whom we respect,



and hold his personal appearance as a taboo item which we dare not discuss openly. This is the way of the camera. This way of its seeing every man in the eye, and recording every detail of his appearance in a fraction of a second has made the camera a mighty weapon with which the way of thinking of persons around us can be molded to our way of thought. This is the reason why in our time the art of photography plays such an important part in almost everything we come across.

The other factor is the animate one—the man, the modern Alladdin behind the camera who is always looking around for objects against which he can direct his slave—the camera, with potential success. Sometimes the person may be a moppet, at other times he may be a fellow in a panama and tweed-suit, a house-wife, a business man or an elderly man with a portly stomach, and a top as smooth as a billiards ball, who mounts the camera each time giving an exposure of 1/50 sec. or less on a stable tripod, and if you examine their background, you may find them coming from different walks of life (e.g.) a student, a businessman, a doctor, a lawyer, or a factory worker. In the same manner, these people's approach towards equipment is individualistic, each one buying according to his financial limitations. Though the persons and equipment are of a diverse quality, they regard photography with the feeling that is common to all humans - a desire to create.

Now let us see what happens if the master and slave are put together in the pot. Something ought to brew. The quality of the brew depends upon the way we have mixed the master and the slave. If we have in the master a dominant character who can command and get things done, but at the same time knows the limitations of the slave, the results will be good. If it is the other way, a master who does not know to give orders, and without any knowledge of the slave's capacity the results would be the same as that we find in houses where the lady is the high command.

Madras Medical College Magazine

After all horses and women should be treated accordingly.

At times we come across shutter bugs who carry around them enough equipment for two persons. Though the camera is the most important and is the basic tool, the accessories are used under special conditions, where the persons uses it to improve the photograph which he will obtain using the basic tool. It is just like the few extra touches of paint the artist uses, or the final icing over the Christmas cake. The extra strokes of paint and icing over the cake are applied to improve the quality and appearance of the object—they are not the cake or the painting by themselves. With their improper addition, they do not make any sense. Using the above accessories, requires knack and skill obtained only after many failures. A layman can overdo the act of obtaining accessories, which he must choose carefully in a manner, where the accessories will serve specific purposes. For this he has to go over in detail the accessory list, and strike off those items which he does not know to use or those which will be used on occasions which never come. If he uses an accessory in a condition where no accessory would have been necessary the result would simply be an example of bad art.

Most of us leave photography at the stage, where we rip out the exposed film from the camera and take it to the professionals for developing. We do not 'follow through', being baffled by the complexity of the dark room technique. Due to this, we miss the most fascinating part of photography—the magic of the darkroom. If I say that you have missed something you will not agree with me, but if you see this topsy-turvy world with the negative slowly emerging from the developer, where the blacks are transparent and whites are ridiculously black, you will agree that you were mistaken. As this is not an elaborate article on dark room procedures I will drop the matter here. But the dark room is there for people who will rather get their own hands

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dirty and 'follow through' to the bitter end, rather than call it quits.

After discussing about the photographer and the camera this article will be incomplete without a few lines on the finished product—the photograph itself. What is a good photograph? Different authors view this question each in his own way, with the result that most of the opinions are contradictory. But there are a few points on which most of them agree.

1. *Human interest*—while you are thumbing through a magazine you suddenly stop and look again at a particular picture. The reason is that the photograph appeals to you. To capture your spectator it should be to his liking, it can either please, horrify or amuse. So it should be the way he likes it and the way you wanted it to be.

2. *Theme*: Every good picture has got a feeling, a mood, and tells a story. It should deal with the story objectively without any distracting side-shows. Sometimes in our eagerness to get the whole scene within the space, we miss the idea with which we started. The theme can be emphasized with good composition and lighting.

There are also some technical qualities such as contrast, exposure and focal length which improve the photograph. In recent times, photographers are not strictly following the text-book rules on composition, lighting and exposure. Such pictures are chosen more for their appealing nature than for technical brilliance. By this I am not saying that the amateurs' photographs without good technical qualities can be compared with those of professionals. It is like this. The professionals skip the rules and try a different

style to infuse in it a desirable mood. He knows what rule he is breaking, and by years of experimentation with his camera as well as in the darkroom, he knows what will be the finished photo. In short, in the professionals' method there is order in the disorder.

Photography, as any other growing art or science does not follow any set of rules. Maybe to-day's rules on composition, lighting etc., will be obsolete to-morrow. Even if styles change two things will remain constant: Theme and Human interest.

Summing up, photography is a science as well as an art where the principles are based on the fascinating subjects of physics, mechanics and chemistry, where the satisfaction you derive depends upon the mastery of the processes as well as your eye and your imagination. People view photography in different ways: for one it is a hobby, for another it may be a science, a craft, an art or a casual pastime. As a career, its demands are more exacting and arduous than some of other professions. This is not an exaggeration since the cameraman also enters the casualty list in times of riot and war, and the news photographer has to miss his food and sleep to shoot a photograph with human interest, to make the deadline of the morning edition. But whether it is a hobby, a science or a career for you, with increased understanding of the processes and technicalities you develop a craving for this interesting art. Also we get a lot of deep satisfaction—satisfaction far beyond any we might have known where you are contented to accept photography as the simple thing it seem to be. For satisfaction was never an accident. So here we come to the moral—you are the most important part of any camera you will ever own. ★

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Probable role of Histamine as Chemical Mediator in Allergic Persons

Histamine has received special attention ever since Kwiatkowski (1943) reaffirmed the presence of Histamine in mixed somatic nerves and found a particularly high concentration in dorsal root fibers. This latter finding focussed attention on the possibility that sensory nerves (especially pain fibers) and dorsal root vasodilators may be histaminergic in function.

Histamine is present in many tissues, including the central nervous system and it is found in appreciable amounts along with norepinephrine in post-ganglionic sympathetic fibers. The function of Histamine in nerves and effector cells, and its possible role as neurochemical transmitter are not yet known.

Histamine is still an enigma to pharmacologists and physiologists despite its ubiquitous distribution in the body, and the particularly high concentration obtained in the lungs, kidneys, and gastro-intestinal tract, the exact role of Histamine is far from clear. Just like Acetylcholine is accepted as the chemical mediator in the cholinergic nerve terminals, in allergic individuals it is possible to expect that Histamine instead of Acetylcholine is the chemical mediator. In order to prove this statement, the author proposes to bring forth the salient points revealed from a careful comparative study of the pharmacological actions of both Acetylcholine and Histamine.

A comparison of the pharmacological and physiological actions of Acetylcholine and Histamine would be of great interest because the response in effector cells with both drugs is almost similar and thought provoking.

(1) Acetylcholine, a chemical substance derived from an aminoacid choline is 100,000 times more active than choline (its parent substance) in causing a fall in blood pressure.

Histamine is b-imidazoleethylamine, a decarboxylation product of the aminoacid Histamine, exhibits marked Pharmacodynamic activity unlike the parent substance.

(2) Esters of choline like Acetylcholine are rapidly hydrolysed and inactivated by cholinesterases in the body tissues.

Changes in the structure of Histamine cause a marked loss of pharmacological activity. Its action is very evanescent due to rapid inactivation by histaminase. Its rapid inactivation is believed to be due to tissue binding followed by enzymatic destruction (Waters 1950). Best et al (1929) demonstrated the presence of specific enzyme, histaminase in certain tissues capable of destroying Histamine.

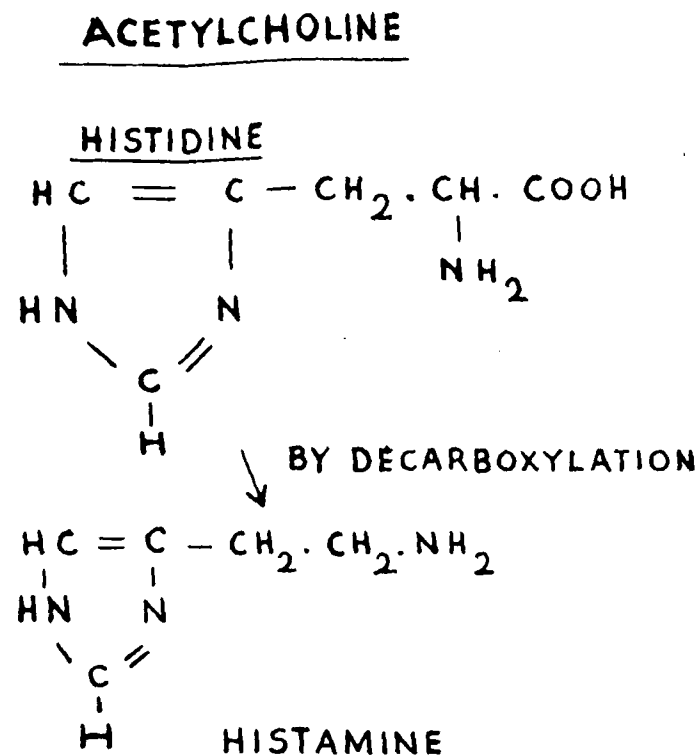
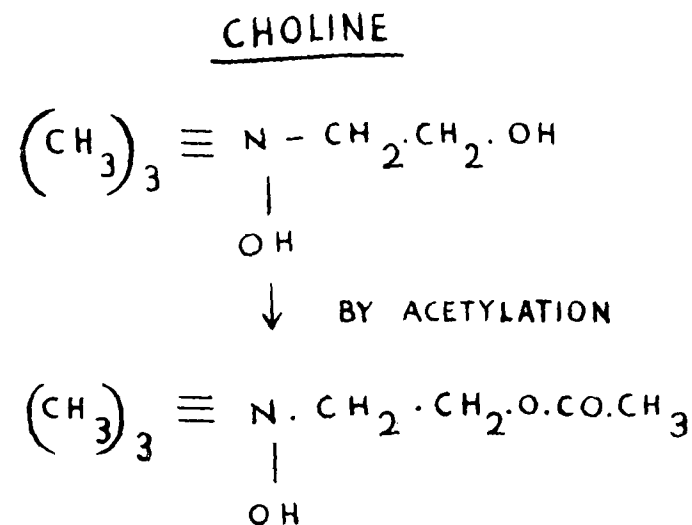
(3) Choline is an ubiquitous substance found in most animals and many plant cells.

Histamine is also an ubiquitous substance, widely distributed in animal and plant tissues. Pharmacologically it is a potent agent and affects many structures of the body.

(4) Evins (1914) has identified Acetylcholine in certain extracts of ergot.

Barger & Dale (1910) have isolated histamine from its natural state in ergot.

(5) Acetylcholine is practically inert when given by mouth due to its hydrolytic destruction by gastro-intestinal enzymes.



Histamine exerts little pharmacodynamic action when taken by mouth. It is presumably acetylated both by intestinal bacteria and by enzymes in the liver, as well as destroyed by histaminase.

(6) Acetylcholine acts directly on effector cells to elicit characteristic responses, in the case of muscle and ganglion cells, this action is one of depolarization of the post synaptic membrane.

Histamine acts directly on the contractile mechanism; the response is independent of innervation, antagonized by epinephrine, not blocked by atropine.

(7) Acetylcholine causes vasodilatation, especially of the smaller blood vessels and a fall in blood pressure.

Heart: bradycardia due to vagal stimulation, and cardio acceleration due to excitation of sympathetic ganglion, with prompt increase in coronary flow (Wedd 1936.)

In man therapeutic doses of Acetylcholine produce little change other than vasodilatation, and a slight blood pressure fall because of the rapid destruction of the compound, and the efficient compensatory cardiovascular reflexes mediated through the caroticoaortic pressor-receptors.

Histamine—When histamine was infused, I. V. reflex compensatory reactions were sufficient to prevent marked fluctuations in blood pressure, the systolic pressure remaining unaltered (Weiss)

Histamine is a powerful dilator of capillaries especially over the blush area, with a rise in the temperature of the skin.

Arterioles also dilate to a considerable extent.

When Histamine is continuously infused intravenously at the rate of 0.02 to 0.04 mgm per min. the heart rate, cardiac output and coronary blood flow are increased.

(8) Acetylcholine on gastro-intestinal tract—increases in tone, and amplitude of contractions and peristalsis in the stomach and intestine with stimulation of gastric secretions. The secretion of pepsin, mucous and acid is enhanced.

In man salivary, lacrimal and sweat glands are particularly stimulated.

Histamine—Copious gastric secretion, the local application to gastric mucosa also produces a secretory response. Stimulates salivary

flow in large doses. The response can be potentiated by eserine and abolished by atropine. (Gibbs and Meclanahan 1937).

Histamine stimulates pancreatic secretion, which is inhibited by atropine.

(9) Respiratory system—Acetylcholine causes bronchospasm and increased secretion of bronchial glands.

Histamine constricts bronchioles by a direct muscular action. The effect of Histamine on the bronchioles of normal persons is negligible, but it has a broncho-constrictor action in patients with bronchial asthma.

(10) Acetylcholine stimulates the production of epinephrine which acts antagonistically through sympathetic stimulation. Acetylcholine stimulates autonomic ganglia.

Histamine can release epinephrine from the adrenal medulla (pheochromocytoma) which blocks all the effects of Histamine. Histamine can stimulate autonomic ganglion cells (Konzett 1952).

(11) Acetylcholine—injecting intravenously in animals, causes inhibition of a water diuresis by its direct central effect on the hypothalamico-hypophyseal system stimulating the secretion of antidiuretic hormone.

Acetylcholine is present in brain and nerves. Histamine can be isolated from whole blood due to its presence in myeloid leucocytes.

Histamine can be extracted from various nerves, the highest concentration being found in those which elicit antidromic vasodilatation.

Inactivated by diamine oxidase—histaminase, conjugation with acetic acid, and intracellular binding. Histaminase is abundant in kidney, liver and intestinal wall.

(12) After blocking ganglia by C6 or T.E. A. Histamine produces a pressor response like Acetylcholine (J. Pharm. Expt. Therapeutics. 105, 191-197 May 52)

Conclusions: From the facts mentioned above it becomes more and more clear that

there is no valid objection to reject the hypothesis that in certain individuals who are unduly allergic, exhibiting either bronchial asthma, or eczema, or gastro-intestinal allergy, sometime or the other Histamine may normally act as a cholenergic chemical mediator instead of Acetylcholine.

Because of this intrinsic difference between an ordinary person and an allergic person, the latter is easily upset and becomes ill if Histamine liberating substances are either ingested or inhaled. Since the cholenergic nerves in allergic individuals are histaminergic, they respond violently to Histamine by a shocklike syndrome. If this theory is accepted, then only will it be possible to explain many of the success and failures in the therapy with antihistaminic drugs. It will become evident also that it is not possible to completely cure such manifestations as asthma, abdominal allergy

and skin sensitivity and that the various antihistaminic drugs act as palliatives and not as curatives.

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The Creator

Here, is a man by deafness bound,
Ne'er in the world to hear any sound,
The rattle of the tram or the humming street,
The voice of the sea or the violin sweet.

There is a man, they say he is blind,
The lovely rose he is yet to find !
Nothing in the world doth appeal to his eye,
Not e'en the sea nor the moonlit sky.

But one day the deaf to the blind doth show,
The way with a stick and then I know :
The mercy of Him that oft doth show,
To every man a path to go.

—Peevies.

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P. V. SUNDARAM, B.SC. (PHARM)

Heredity and Environment

The science of genetics has for its aim the discovery, classification and offering of explanations of the various facts with regard to Heredity and variation. Heredity is the tendency of an organism to resemble its parents, i. e. ancestors and relatives, whereas variation is the tendency to depart or deviate in any particular from the other representatives of the same genes. All these factors are familiar to all observers of man, animal or plants. These two great phenomena of Heredity and variation exist together in all terms of life and are as old as the Universe. In fact both are essential for the progress and success of the individual and of the race. It is said that variation creates new kinds of living things which are preserved by heredity.

It is well known that one generation of complex adult individuals is linked with the next. This link is made possible only through single reproductive elements. When we remember this fact, the phenomenon of Heredity suggests itself as a clear index to a marked similarity or sameness, which is governed by a basic hypothesis or fundamental set of causes.

The dictionary defines Heredity as the principle or fact of inheritance or the handing down of physical and mental characteristics from parent to offspring, opposing the tendency to variation under conditions of environment. It is the conservative factor in Evolution. Thomson defines Heredity as, "the organic relation between successive generations which secures persistence of characteristics and yet allows new ones to emerge". The narrow physical bridge that connects one generation with the succeeding one is formed by the reproductive cells. All the characteristics which the new individual inherits

from the parent, must be transmitted into the living material of the minute, but effective sexual elements. Any particular adult features such as size, shape or complexion may not be visible in these minute precursors. But what lies in these cells is that 'something' which represents these characters, and which has the capacity to propagate them in the new individuals. Therefore, in every human sperm and ovum for example, there ought to be properties which represent all characteristics. With each others mutual cooperation, and with that of the environment, these properties determine the kind of individual that will emerge from the fertilized ovum.

Heredity is governed by a considerable number of extremely minute bodies known as 'genes' which are proteins of complex structure. These genes are contained in what are known as chromosomes which are the bearers of hereditary characteristics. Naturally such a general phenomenon, though it may seem hypothetical, can be classified by a careful examination of resemblance between parents and offsprings. The extensive experiments on the Vinegar fly *Drosophila* have contributed much to our modern knowledge of the mechanism of Heredity. In the tissues of the salivary glands of this fly, it is possible to see the actual genes themselves. Much work has been done along these lines, and in particular the breeding experiments led to the discovery of the differences among 'genes' and the mode of their arrangement in the chromosomes. There is little difficulty in the recognition of the humanness of every child that is born. So is the case with every one of 'His' creations. The successful classification of the animals and plants of the earth, in an orderly system, and the guiding system that the most

alike individuals are probably most closely linked, speak volumes of the general truth of what is known as the hereditary resemblance. This resemblance which may be minor, may extend to be greatly pronounced in the case of identical twins in man. In extreme cases it may even be a problem for the mother to distinguish between the two. Here, extreme similarity is undoubtedly due to extreme closeness of relationship; because such twins often arise from a single ovum. Thus the Heredity of the two members of a pair is identical. Such twins brought up under entirely different environmental conditions retain the similarity of physical and mental traits. For example, at the same ages they get the same illnesses, and also it has been found that they possess similar abilities in manual work.

It is inevitable that some environmental features should influence some of the activities of 'genes'. There are two kinds of environmental factors, one is external, and the other is internal. Light has a strong effect on an individual, and it is an external influence which can be seen in the case of aphids. Aphids develop wings when brought up in perpetual light, and when they are denied the light, are almost devoid of wings.

Nutrition has many parts to play. In South America the green parrots when fed on the fat of cat fish showed red and yellow colours. In mammals, these environmental modifications may appear to change the rules of Heredity on account of the source of nutrition. The mother has more chances to influence the qualities of the child than the father, because the embryo develops within the body of the mother and it receives its nutrition from her.

Coming to the internal environment, the hormones produced by the various endocrines play a prominent role. If genes govern the hormones, any character that is modified by the hormones is purely genetic.

However the secretions of the endocrines show some variations which may be independent of the 'genes'. They are not always of the same quality nor do they occur in the same quantity. Such factors as diet have a decisive effect on these secretions.

There is an enormous difference in the extent of dependance of these qualities on external factors. The colour of the eyes in man is almost wholly fixed by the genes themselves. The different patterns of finger prints are probably independent of any environmental effect that is external. General stature and vigour are to a great deal governed by external treatment.

But there is another school of thought which says that the effect of Heredity is negligible when compared to that of environment. Even today the Russian biologists do not attach much importance to the working of Heredity. They assert that environment plays a much more decisive part in this world than Heredity. They opine that children of different societies when brought up in identical environments develop in the same characteristic way, whatever be their Heredity. But in India it is rather very difficult for us to share their opinion. Naturally we recognise as much the influence of environmental factors on the character of an individual as of the Hereditary mechanism itself. ★

A Boy is grown up when he starts to notice that girls notice boys who notice girls.

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Fainting

Fainting or syncope implies a sudden, brief and transient loss of consciousness. The basic factor, which is rapidly reversible, is usually a sudden reduction in the blood supply to the higher centres of the central nervous system which is responsible for the conscious state, constituted by the reticular system of the brain stem. Less commonly, it may be due to reflex nervous effects or alterations in the biochemistry of the blood as in hypoglycaemia, hyperventilation etc.,. In general when the basic factor is operative, an upright position favours the onset of loss of consciousness because of the influence of gravity against the flow of blood to the higher centres.

Fainting may be due to cardiac or non-cardiac causes. The latter may be divided, for convenience of clinical approach, into those associated with significant alteration of the blood pressure and of the heart rate, and those which are not accompanied by such changes.

NON—CARDIAC CAUSES OF FAINTING: A. In the category of noncardiac causes associated with significant changes in the blood pressure and heart rate are:-1) vaso depressor syncope, the common 'benign' faint: a sudden fall of B. P. arising out of widespread arteriolar dilatation, due to various stimuli, like the sight of blood, receipt of alarming news, venipuncture, stimulation of the pleura, etc., in predisposed persons. Asthenic states, a 'nervous' disposition and unfavourable environmental conditions are predisposing factors. The heart rate is usually slow and the radial pulse is feeble; an interesting feature is the associated evidence of over activity of the autonomic nervous system. Persons with vasodepressor

syncope exhibit immediately prior to, during, and after the attack, sweating, pallor, dilated pupils, yawning, intestinal hypermotility etc. In the absence of fainting as such, association of these autonomic phenomena and the feeling of light-headedness would constitute the fainting reaction.

A similar, sudden fall of the blood pressure, due to peripheral arteriolar dilation occurs in carotid sinus syncope of the peripheral type. Autonomic overactivity manifestation may or may not accompany the syncope.

(2) In postural syncope, on assuming the erect posture, the subjects, who often have diseases of the nervous system, especially of the autonomic, as in diabetic neuropathy, tabes dorsalis, and after bilateral sympathectomy for hypertension etc., have a marked fall of blood pressure due to failure of vasoconstrictor activity and a reduction in cardiac output. Autonomic phenomena are absent.

(3) Pooling of blood from the peripheral parts of the venous system, producing a diminished return of blood to the heart, and therefore, a diminished output and reduced cerebral blood flow as in fainting due to rapid removal of accumulated fluid from body cavities, of urine from a distended bladder, and in the tussive fainting of emphysema.

(B) Among conditions associated with syncope not accompanied by significant changes of heart rate or blood pressure, and which are of extra-cardiac causation are:-1) cerebral type of carotid sinus syndrome in which, together with fainting, there may be focal neurological symptoms and signs on the side opposite to that of the stimulated carotid sinus.

(2) Fainting in severely anaemic subjects, and in patients with cyanotic heart disease on exertion, is due to the factor of anoxaemia affecting the higher centres of consciousness.

(3) In fainting of hyperventilation, which may be voluntary or reflex as in anxiety, there are associated features of numbness and tingling of the mouth, face and extremities, and often, tetany.

(4) In the fainting due to hypoglycaemia, the attack is usually brought on by starvation, and there are associated phenomena due to autonomic disturbances like weakness, sweating, pallor, trembling etc.

(5) Fainting is not uncommon in certain cardiac conditions like aortic stenosis, pulmonary stenosis, angina pectoris and in primary hypertension, especially on exertion; an inadequate increase in the cardiac output with exertion is possibly the cause.

(6) Fainting has been observed in obstruction of the common carotid arteries, and, rarely, fainting without focal signs has also been observed in patients with occlusion of the smaller cerebral vessels.

(7) Hysterical fainting:—commoner in women, it is often abrupt in onset, without associated sweating, nausea, etc. Like other hysterical manifestations it requires an audience to become manifest. Its duration is variable and there are no changes in the blood pressure, heart rate, or in the E. E. G.

CARDIAC CAUSES OF FAINTING:— These are characterised by extreme changes in heart rate. Marked slowing of the ventricular rate or ventricular systole may be brought about by a reflex vagal influence or by disease of the conducting system in the heart, and result in pronounced diminution of cardiac output and of cerebral blood flow. Reflex ventricular slowing occurs with hyperactive carotid sinus reflex of the cardiac type, in stimulation of the afferent endings of the vagus in the pharynx, oesophagus, etc in susceptible individuals. Interesting instances

of fainting on swallowing in patients with diverticulum of the oesophagus have been recorded, the diverticulum being the site of origin of the reflex.

In disease of the conducting system, syncope occurs when onset of idioventricular rhythm is delayed during the transition from the normal sinus rhythm or partial heart block to complete heart block (Stokes Adams syndrome). Idioventricular rhythm has also been known to fail for short periods in the course of complete heart block. Repeated observations may be necessary in some instances of disease of the conducting system, because normal sinus rhythm may be present most of the time and the short period of abnormality may be missed.

Ventricular standstill due to disease of the conducting system usually occurs in sleep, while that due to reflex vagal effect occurs when the patient is awake. Atropine restores the normal sinus rhythm if the heart block is due to reflex causes.

When the heart rate is exceedingly rapid as in paroxysmal tachycardia, auricular flutter etc, the cardiac output is markedly diminished and the cerebral circulation impaired, syncope being precipitated in severe cases. Ventricular fibrillation is another instance of insufficient cardiac output which may lead to fainting, if short lived but which may be fatal if prolonged.

In the clinical approach to the problem of fainting, the following points deserve attention.

(1) The general physical status of the patient and of illnesses suffered from. For example, vasodepressor syncope is common in wasting, febrile illnesses, pregnancy, etc.

(2) Circumstances under which the fainting occurs—for example, vasodepressor syncopes in states of anxiety; coma of hypoglycaemia after starvation; onset of carotid sinus syncope during movements of the neck; fainting after exertion in aortic stenosis, and after coughing in emphysema.

(3) Associated autonomic disturbances:—Common in vasodepressor syncopes and hypoglycaemia; but rare with postural syncope.

(4) Heart rate and pulse rate during the attack: for example a slow heart with a full pulse is seen in fainting of heart block; and a slow heart with a feeble pulse in vasodepressor syncope.

(5) Among investigations that may be necessary are

(a) pressure in the carotid sinus and its effect on heart rate, blood pressure, state of awareness, and the appearance of any focal signs: to spot a hypersensitive carotid sinus reflex.

(b) The hyperventilation test in which the patient is asked to breathe rapidly and deeply for two minutes, and noting any similarity of the changes that occur, to the spontaneous attacks.

(c) Record of the blood pressure and of the pulse rate while recumbent, and after standing stationary for one minute: to detect postural hypotension.

(d) Fasting blood sugar estimation and a glucose tolerance test to detect hypoglycaemia.

(e) Examination of the heart for evidence of disease, especially of the aortic and pulmonary valves and for disturbance of the conducting mechanism, by clinical methods as well as by electrocardiography.

(f) Examination of the central nervous system to exclude diseases like tabes dorsalis, subacute combined degeneration and diabetic neuropathy, conditions associated with postural syncope.

(g) In obscure cases, electroencephalography to exclude epileptic equivalents simulating common faint.

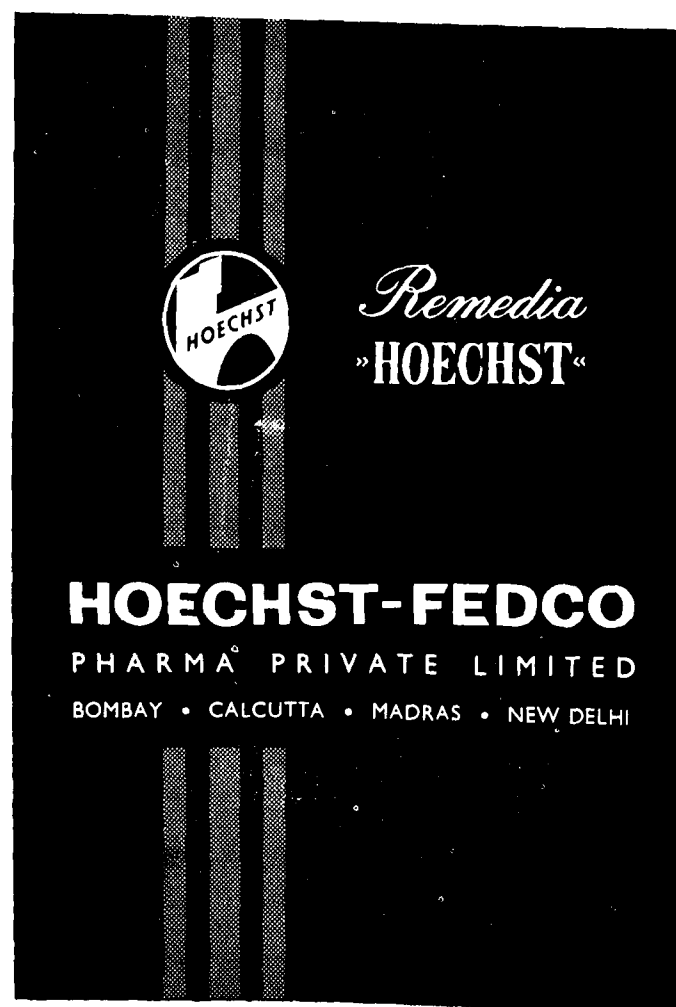
In management of the attack of fainting, the subject is laid on his back with his head low, and by elevating his feet some inches from the ground, venous return is facilitated. The clothing around the neck and chest is loosened. Massage from the periphery towards the heart also helps in improving the venous return.

When there is marked bradycardia and hypotension of reflex origin, subcutaneous injection of 0.25 to 0.5cc of 1/1000 adrenaline or 0.5 to 1 mgm atropine sulphate is useful. In the fainting of Stokes-Adams attack, the recovery usually occurs before any treatment can be given; but in severe instances intra cardiac injections of 0.25cc of 1/1000 adrenaline is necessary. In fainting of other conditions like paroxysmal tachycardia, hypoglycaemia, hyperventilation etc., appropriate specific measures are adopted: for example intravenous digoxin, quinidine or parasympathomimetic drugs in paroxysmal tachycardia after the usual measures like carotid pressure etc., have failed; intravenous glucose in fainting of hypoglycaemia; rebreathing in a paper bag in fainting of hyperventilation and so on.

After the attack of fainting, the subject is examined thoroughly and treated for the underlying diseases as for instance, avoidance of emotional strain, correction of anaemia and improvement of general health in vasodepressor syncope. Administration of ephedrine on a maintenance basis in subjects of postural hypotension due to irreparable disease of the nervous system; stripping of the coats of the carotid artery on the side of the more sensitive carotid sinus in carotid sinus syndrome; maintenance on ephedrine or Barium chloride of subjects of Stokes-Adams attacks, on belladonna of patients subject to reflex cardiac slowing due to vagal stimulation, on prophylactic doses of quinidine or procainamide of those subject to frequent episodes of the ectopic tachycardias. Subjects of hypoglycaemic attacks have to be given appropriate treatment, depending on the cause of the attacks: for example in organic hyperinsulinism surgical extirpation of the islet cell tumour may be necessary.

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- (1) Signs and symptoms: Cyril Mitchell Mac Bryde.
- (2) Pathological Physiology: Sodeman.
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- (5) Text book of Medical Treatment: Dunlop and others.



C. D. SASIKUMAR, FINAL YEAR M.B.,B.S.

Magic Mixture†

Michael Mac Munn, medical man, met Mamie Mammon melodramatically—Mamie's motor, mismanaged, making Michael's motor mincemeat.

Mamie Mammon's magnetic manner mesmerised Mike Mac Munn.

Meeting Mrs. Mammon, Mamie's mother, Mike momentarily murmured: "May Mamie marry me, Mrs. Mammon?"

Many maladies made Mrs. Mammon morose, melancholy. "My Mamie must marry MONEY, Mr. Mouldy Medico", muttered mother Mammon.

Mercenary Mrs. Mammon mocked moderate medical man.

"My methods might make money," mentioned Mike mildly.

"Massaging microbes? Madness-mush!"

"Mistaken, Mrs. Mammon Massacring microbes!" mumbled Mike.

"Mike may mass millions, Mummy", murmured Mamie meanwhile.

Mamie mused much, Mike's microscope made molehills mountains, might 'nt Mike's mighty mites mitigate, minimise Mamma's malady?

"Mike!"

"My Mamie?"

"Mummy's maladies make me miserable"

"Maladies, Mamie? Malaria? Measles? Meningitis? Mumps?"

"Mother's moody, morbid, melancholy."

"M-m-m," muttered Mike. "Melancholias' merely microbes munching, masticating, mutilating mental membranes. * Microbes

multiply marvellously, minutes make millions, months myriad multi-millions!"

"MIKE!"

"My mistake," mumbled Mike. "Microbes murdered, murder more microbes. My method-making 'Murdered Microbe Medicine'—means microbe massacre!"

"Magnificent! * murmured Mamie. "Mix Mummy Melancholia Microbes Medicine Michael mine!"

Mike mashed many morbid microbes' muscles, mixing many medicaments, made Mrs. Mammon's mixture. Meanwhile, Mrs. Mammon moped.

Mamie manifested Mike's medicine. "Mamma! Mamma! Mac Munn's marvellous mixture!"

Mrs. Mammon moaned. "Most medicines merely makes me much more mokey!"

"Mike's mixture's miraculous! Massacres microbes!"

Mamie made Mamma manipulate many mouthfuls.

Mrs. Mammon mincing merrily, met Mac Munn mouching moodily.

"Mighty Medico! Miracle Man! Magic Mixture-mixer! Marry Mamie!"

"Moneyless," mumbled Mike mournfully.

"Money?" mocked Mrs. Mammon, "Medicines much more mighty! Mere money's meretricious. Moreover-My money's monstrous!"

Mendelssohn's Marriage March made most magnificent music. ★

* With apologies to our teachers of Medicine!

† Momma! Editors.

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W. H. O. REPORT

The Killing Diseases,
Past and PresentThe most significant event
of the decade.

The phenomenal decline in mortality is the most significant demographic event of the last decade, according to the United Nations Demographic Year book. In the world as a whole, death rates for 1950-1954 (latest available) were lower than those for 1945-1949 and countries with the highest death rates in the earlier period (Africa and Asia) experienced the greatest reduction.

The decline may be attributed in the main to advances in environmental sanitation and disease control, and it is reflected in increased life expectancy almost everywhere. In the more developed countries a new-born girl can be expected to live 4-5 years longer now than 10 years ago, a new-born boy 3-4 years longer; and in some of the countries undergoing rapid development, life expectancy at birth has increased up to 11 years for girls and 10 years for boys.

With a decreasing rate of death and an almost unchanged birth rate the population of the world (Now about 2,700,000,000) is growing rapidly: every hour almost 5,000 persons are added, or 120,000 per day or 43,000,000 per year—an increase calculated to double the world's population by the end of the century.

Pestilences that stalk no more.

The last ten years have seen a dramatic decline in the extent and severity of the pestilential diseases whose names terrified our grandfathers—cholera, typhus, smallpox, plague, relapsing fever and yellow fever.

Cholera, for example, has dwindled in importance to the point of being a problem

only in its epidemic foci in India and Pakistan, and even there a significant improvement has taken place: from 1945 to 1949 a total of 824,000 deaths were reported, from 1950 to 1954 less than 385,000.

Epidemic typhus is now disappearing from Europe and North America and declining in the other continents.

Smallpox is claiming fewer and fewer victims; the annual average in the whole world for the period 1945/1949 was 193,000 cases compared with 178,000 for 1950/1954.

Yellow fever shows a decline of about 50 per cent between 1950 and 1955.

Infections down, accidents up

While deaths from infectious and parasitic diseases are only half of what they were ten years ago, accidents have become a serious and often leading cause of death, particularly among children and adolescents.

In North America and parts of Europe, accidents account for nearly one-half of all deaths among boys between 5 and 9 years of age. Road accidents claim most young lives; then come falls, which in some countries are responsible for up to one-third of all accidental deaths, then drowning, fire and explosions and poisoning.

Both are doing well

Fewer and fewer women die in childbirth and more and more babies survive their first step into this world.

In some countries, a 90 per cent decrease in maternal mortality has taken place during the last 20 years. In 1955, the maternal death rate, as calculated per 1,000 live births, was lowest in New Zealand: 0.4; 20 years ago it

was 3.8. The decrease is most spectacular in the countries undergoing rapid development, for example Ceylon where the drop was from 20.5 in 1936-1938 to 4.1 in 1955.

As regards infant mortality, the lowest rate in the world is recorded in Sweden, where it dropped from 22 per thousand live births in 1951 to 17 in 1956.

Malaria - a monster that may soon be tamed

At least three-fourths of mankind live in malaria zones. Up to 1948, about 300 million people were attacked by malaria each year and 3 million died. During ten years of malaria campaigns, these figures have been cut by 30 per cent but the disease still presents a huge international health problem.

However, with the insecticides and drugs that are now available, malaria eradication is possible almost throughout the world, provided that campaigns are pushed hard enough before insect-resistance to spraying develops.

Some regions are close to the goal: in Southern Europe, 4,000,000 new cases a year were reported before the introduction of DDT spraying—now less than 10,000 a year. In the Union of Soviet Socialist Republics there were some 4,330,000 cases of malaria immediately after World War II. In 1956 fewer than 13,000 new cases were found and no new infections are expected to occur after 1960. In the Americas, malaria once menaced 135,000,000 people. To date 105,000,000 have been protected and the vigorous campaigns now going on are expected to complete the protection within a few years.

In Africa south of the Sahara, malaria presents the most serious and difficult problem with which the specialists are confronted. Nevertheless, at the end of 1955, 14,000,000 of the 116,000,000 Africans living in malarial regions had been protected against the disease.

Even in the Eastern Mediterranean countries a traditional reservoir of malaria, striking

results have been achieved during ten years of antimalaria work; before, 40,000,000 people suffered regular attacks of the disease, now less than 14,000,000.

These are the modern killers

Heart disease and cancer are not only the largest causes of death in the majority of highly developed countries, but they are on the increase.

In England and Wales, for example, deaths due to cancer in 1947 accounted for 15.1 per cent of all deaths. By 1955, the percentage had risen to 17.6. In Denmark the increase was from 16.2 in 1947 to 21.8 in 1955, and in the United States of America from 4.7 to 15.7.

In most of the highly developed countries, deaths from cancer of the respiratory system represent a growing percentage of all deaths due to cancers.

Also deaths from degenerative disease of the heart and arteries (the most frequent cause of death in North America and most of Europe) are increasing. Among the possible causes is the aging of the population and consequent swelling in the 40-80 age group in which these diseases are most prevalent. Also, diagnostic techniques have improved, decreasing the number of deaths formerly attributed to "senility" or to "unknown causes."

Polio - new defences against a new enemy

The discovery in 1949 of a method of growing poliomyelitis virus in tissue cultures revolutionized the study of polio and eventually resulted in large-scale vaccination campaigns with the killed-virus vaccine of the Salk-type.

In the United States of America, for example 70 million people had been vaccinated by the end of 1956. That year, the number of polio cases reported was the lowest since 1947: 15,400 compared to 57,879 in 1952 which was a record year for poliomyelitis.

However, it has not been possible to attribute the low incidence in 1956 entirely to the vaccine.

In 1957, WHO recommended large-scale trials with a new live virus vaccine which can be given orally, instead of being injected.

Tuberculosis—a turning point

Tuberculosis is killing relatively fewer people each year. For example, between 1950 and 1955 death rates per 100,000 population dropped from 58.1 to 31.1 in France; from 13.8 to 6.3 in Denmark; and from 143.6 to 63.0 in Portugal.

Nevertheless, tuberculosis is still the greatest killer of all infectious and parasitic diseases, and in North America, Europe and Australia, it accounts for three-fourths of all deaths from these diseases occurring after the age of 15.

A considerable change in the age distribution of deaths from tuberculosis of the respiratory system has taken place: before World War II the majority of victims were women between 20 and 30 years of age and men between 40 and 55. Now, deaths are most numerous among people over 60, women and men alike.

In 1955, a turning point was reached in the world outlook on tuberculosis with the advent of new drugs promising a revolution in the management of the disease. Pilot studies are being sponsored by WHO to determine whether the new drugs can effectively be used in large-scale home treatment of tuberculosis victims.

Pneumonia steady at new low

A substantial decrease in the number of deaths from pneumonia has taken place since penicillin and other antibiotics became available.

Most lives have been saved in New Zealand, Switzerland, Italy, the Netherlands, the United States and Sweden, where the decrease in pneumonia deaths ranges from 62.1 per cent to 53.1 per cent. Next come Norway,

Denmark, Canada, Ireland, Australia, Scotland, Ireland, Germany and Japan, with a drop of 43 per cent to 32.6 per cent. The figures for South Africa, Northern Ireland, England and Wales, and Portugal have gone down from 26.2 per cent to 14.1 per cent.

Nevertheless, pneumonia still ranks among the 10 diseases causing the greatest number of deaths in the more developed countries. It remains one of the three leading causes of death among infants, and is even more serious among the aged.

Little variation in the death rate for pneumonia is at present being reported from one year to the next, and it can be assumed that it will remain at the present level for some years to come.

Fewer beds, more patients

Mental patients occupy between 40 and 50 per cent of all the hospital beds in Europe and North America. There are not enough beds for thousands more who might benefit from hospitalization. How can this pressure be eased?

New mental treatment techniques now being applied in several countries may provide one answer. Ten years ago in Ville-Evrard, France, for example, the average stay of patients before discharge was over one year; now it is four months. This hospital, which in 1948 had 550 beds and admitted 100 new patients a year, now has only 270 beds but gives care to 600 new patients a year and the percentage of patients that must be kept indefinitely has gone down from 50 per cent to 7 per cent.

Diphtheria capitulates

A prevalent disease at the beginning of the twentieth century, diphtheria is now in full regression throughout the world, particularly in Europe which was the continent most seriously affected. In a number of countries among them the United Kingdom and Denmark, diphtheria has to all intents and

purposes disappeared through vaccination campaigns.

In 1948, 119,000 cases were reported from the whole of Europe. Now the annual number of cases is less than half that and in 28 countries in Asia, America and Europe, the number of deaths from the disease dropped from 5,148 in 1950 to 2,824 in 1955.

Whooping cough still strikes

Although still the most deadly of infectious diseases for children, whooping cough is on the retreat. In 28 countries all over the world, deaths from this disease dropped from 26,325 in 1950 to 10,376 in 1955. The highest death rate is among children less than one year old but it is in this age-group also that the decrease is most striking: from 7,874 in 1950 to 1,623 in 1955.

Whooping cough is unique among the diseases of childhood as it usually strikes and kills more girls than boys.

Greatest vaccination campaign

In history's greatest campaign of immunization, 192 million people have been tested, and 74 million vaccinated against tuberculosis with BCG (Bacillus Calmette-Guerin) between 1948 and 1957.

The work was started in war-torn Europe by Scandinavian relief organizations and later expanded to the other continents with the aid of WHO and UNICEF. Since 1951 the campaign has been supported by these two international bodies in close co-operation with the governments concerned.

By far the largest part of the programme, both with regard to the number of countries and the number of persons involved, has been carried out in Asia.

Who is getting medical care?

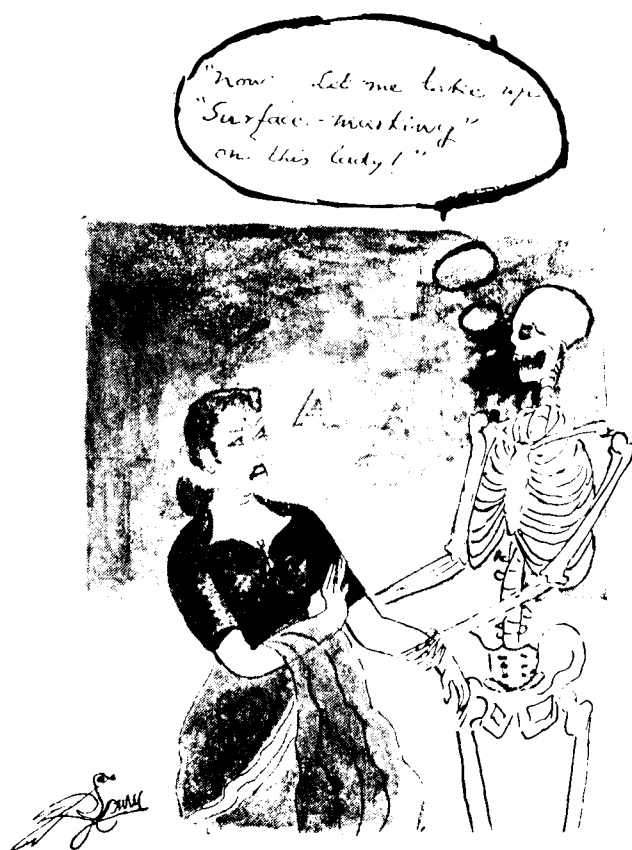
There are now 1,236,000 physicians serving the world's 2,700,000,000 inhabitants and the 638 medical schools operating in 85 countries

graduate annually about 67,000 new doctors.

There are 14 countries fortunate enough to have one doctor to serve every thousand or fewer people. But there are 22 others where there is only one doctor for 20,000 or more inhabitants. Between these two extremes, the rest of the world shows great variations.

As a general rule, there is a shortage in rural areas, while cities have been known to have an over-abundance of medical practitioners.

While nine countries have one medical school for less than one million of population, there are 13 countries with only one such school for 9 to 17 million people. ★



Dedicated to Mohana!

Somewhere, somehow, someone I came across,
A moment dazed I stood and smiled at her,
My lips were bound and stuck to each other,
My heart so full unable to express.

And what it meant to see her smile at me,
No man on earth excepting me will know;
No words she spoke but moved her little brow,
To let me know that mine She'd like to be.

The eyes did speak the letters of her love,
A love so tender never felt before,
It calmed the sea and washed my boat ashore,
Oh! thanks to her, I'm saved and living now.

It took some time for me to understand,
The language of the lady whom I met,
And now for me there's nothing to regret,
For she is there, a ready helping hand.

The softness of her touch did mesmerise
His warm and fragrant body, and his mind,
But who's he, so easily she did bind
Well, that is me who, this did summarise.

PeFe.

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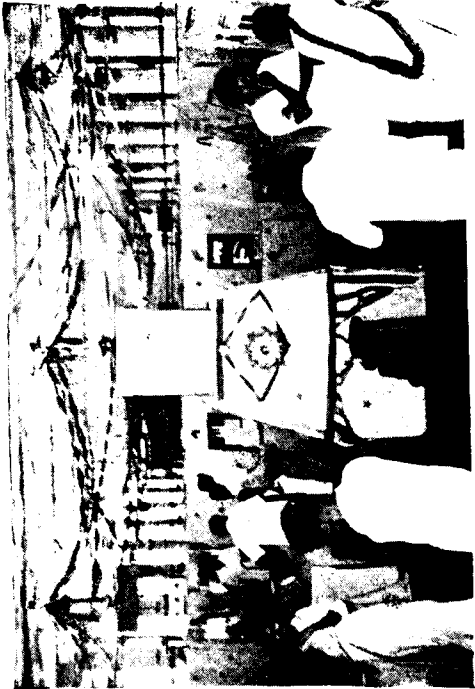
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PONGAL DAY CELEBRATIONS



The Conqueror and that Conquered!



So What....!

Photos by Thillainayagam



DR. STANLEY REIMAN
Director, Lanknau Cancer Research Institute,
Philadelphia at the Medical Exhibition



KUMARI PITCHAMMAL
Winner, Pongal Day Music

G. LAKSHMIAH
Secretary
Pongal Day Celebration Committee

Pongal Day Celebrations

It is indeed a pleasant duty for me to give a brief review of the Pongal Day celebration held in our college on the 4th February 58.

On 28th Jan. 57 under the auspices of the Pongal Day celebration committee, an oratorical competition in Tamil open to all city colleges was held. The Dr. J. A. S. Masilamani Memorial rolling cup was won by the team from Pachiappas college. Individual cups were given to impressive orators, and besides some special prizes were given to orators who won the admiration and appreciation of Mr. Kannadhasan who was one among the judges.

The following evening the Inter Collegiate Music competition was held, in which many colleges, including ours participated. Miss. Pitchammal of our college won the First prizes for both Carnatic and Light music, while the Queen Mary's College won the coveted Tanjore Abraham Pandithar's shield.

Individual cups were awarded to outstanding artistes.

On 25th Jan, Sports were conducted for the servants of the college and hostels. The children of the servants also participated in the sports and they were awarded prizes.

We are proud that we were able to persuade two differing political leaders to appear on the same platform, and participate in the celebration. They were Mr. C. Subramaniam and Mr. C.N. Annadurai. The former presided over the occasion, while the latter was the speaker of the day, and Mr. Annadurai's beautiful oratory and thought provoking speech held the audience spellbound.

After the speeches there was a variety of entertainment which was exceptionally good, and the feature "Katha kalashebam" was the best. It was a narrative of the difficulties and struggles of a student to escape from the confines of the famous "Red Fort", and this particular item will always remind us in our old age, of the joys and sorrows of our student days. Thus the pongal Day was celebrated with great success. ★

"Religion—a daughter of Hope and Fear, explaining to ignorance the knowledge of the unknowable."

—Ambrose Bierce "Devil's Dictionary"

Though women are angels, yet wedlock's the devil.

—Byron.

"Colleges are places where pebbles are polished and diamonds dimmed."

—"Abraham Lincoln,"



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Examination Howlers

Question: Why should you study about the Congenital Heart Diseases?

Answer: **Congenital Heart Disease:** The congenital heart disease is a very important disease about which every medical student in the clinical side should know. But why? The reason being as simple as it's likelihood of appearing in the exam, either in the theory or in the clinical. So I think that this reason is as important as important could be for every medical student.

Apart from that, the disease's occurrence if not very much, is fairly much. So as a medical practitioner you have to encounter many cases of congenital heart disease. So it is very obvious that you should know about the disease. So, remember the etiology, symptomatology, and treatment of congenital heart disease.

Another important thing about the Congenital heart disease is it's grave sequences. So it is all the more important that you should know, about the treatment and it's complications. Supposing you get a case of congenital heart disease, which is very complicated, you should know, how to treat that also, not merely a simple, uncomplicated, pure Congenital heart disease. The grave sequence in the Congenital heart disease being death.

Another thing about the Congenital heart disease is its continuity of treatment. It is not like some disease, which treated for some time disappears, and you discontinue the treatment and you forget about that. In Congenital heart disease you may have to treat the patient, may be for his whole life time, apart from that fact, the heart being the most important organ in the body, you have to take all the care at your command.

Another thing is that you should not discontinue the treatment in all of a sudden. In

fact, what should you do is gradually decrease the dose and then finally stop the treatment.

Concluding, the heart being a very important organ in the body, and a most vital one, any disease pertaining about the heart is important. Even in that, the Congenital heart diseases are more important.

Question: Describe any interesting case you have seen in the wards.

Answer: **Interesting Case:** The question being interesting case and not important case, I think I can venture on divulging this case, which I think is very interesting. Of course that is from my point of view.

When I was posted in ward Z, I came across this case.

The patient was a well nourished individual. Age 41. Sex Male.

Occupation-Cook in the Victoria Hostel, Triplicane.

Complaint: Sudden bleeding from the nose.

History: One day, when the patient was cutting onions in the Victoria Hostel's kitchen, he suddenly noticed bleeding from the nose. then it happened (bleeding) couple of times. So he came to the hospital.

He was a vegetarian in food habits. No smoking-Not addicted to alcohol.

Previous illness-Nothing peculiar, except once he had an attack of influenza.

On examination:

Nothing found abnormal in any system.

The Patient is not anaemic.

Not cyanosed.

No clubbing.

Absolutely nothing abnormal found in any system.

So I think this is a very interesting case. ★

NOW READY

PHARMACOLOGY AND PHARMACO-THERAPEUTICS

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V. ISWARIAH, B.A., (Mad.), M.R.C.P. (Ed.) F.R.F.P.S. (Glas.)
Professor of Pharmacology, Kasturba Medical College, Manipal at Mangalore

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RAGHUBIR SHARMA, Final Year M.B., B.S.

A Case of Type II Nephritis

The Ellis Classification of Nephritis :

Ellis has divided nephritis into two types, namely Type I and Type II. Of these, Type I is what is usually described as acute nephritis, and Type II is sub-acute nephritis or nephrotic nephritis.

Type II nephritis is not so common as Type I. It rarely occurs in children before four years of age.

Aetiology :

Both sexes are equally affected. Exposures and chill are regarded as predisposing causes. In over 80% of cases it follows a streptococcal infection of the upper respiratory tract including tonsils, or other infections like pyoderma, infected wounds etc.

Pathogenesis .

Renal lesions are due to injurious effects of the circulating toxins. There is always a latent period between the time of active infection, and the onset of renal damage. During this period a state of tissue hypersensitiveness develops, and this is the "ALLERGIC" theory regarding pathogenesis of nephritis.

Pathology :

Macroscopically the kidneys are large, pale, soft, and congested. Capsule strips off easily, and on section the cortex and medulla are well differentiated. Cut surface is greasy and has intermittent yellow areas.

Microscopically there is increased degeneration, chiefly affecting the tubules which are distended with lipoid material. There is also evidence of epithelial proliferation and early fibrosis in the interstitium.

Clinical Picture :

The onset is insidious. There is a preliminary period of vague ill health and lassitude. The first symptom is often a mild swelling of the face. This oedema increases gradually in extent as well as severity and ultimately involves the extremities as well as serous cavities. There is massive albuminuria and marked oliguria during the periods when oedema is increasing. Urine is of a high specific gravity and may contain epithelial and granular casts. Gross haematuria does not occur, although a few red cells may be seen on microscopic examination. There is no disturbance of renal function. Hypertension is absent. There is diminution in total blood proteins, particularly albumin fraction, accompanied by marked lipaemia, and hypercholesterolaemia. Chloride content of plasma is raised. The protein content of oedema fluid is very low. There is slight anaemia. Apart from retinal oedema, no form of retinopathy occurs.

Here is a case of type II nephritis.

Pramod Kumar, aged two years and two months was admitted in Government General Hospital under Dr. S. T. Achar on 28-1-58.

Complaints :

1. Scanty micturition ...three months duration
2. Swelling of the abdomen ...three months duration
3. Swelling of the face...two and half months
4. Swelling of the legs...two months

History of the Present Illness:

The present complaint started about 3 months ago as slight distension of abdomen with scanty micturition. Fifteen days later there was

marked swelling of eye-lids, followed by swelling of the lower extremities after another two weeks. During this period the child was passing small quantities of smoky urine. Patient was treated and was improving, the oedema disappeared but for the slight puffiness of the face. Now the swelling has reappeared again all over the body for the past one week, and the child is passing a very small amount of orange coloured urine. Bowels are normal.

There are no convulsions or breathlessness.

History of past Illness :

Child had scabies four months ago for which he was treated.

Neonatal History :

Child cried spontaneously after birth, and was of normal colour.

Birth History :

Child was born full term at home, no instrument or anaesthesia was used. Labour was not prolonged. Mother was healthy during gestation.

Development History :

1. Lifted the head at the 4th month.
2. Started sitting without support at 8th month.
3. Started walking without support at 1st year.
4. Started saying Appa and Ma at 1st year.

Family :

Second child of the family. First child is a boy 4½ years old, alive and healthy, no such complaint. Father and mother alive and healthy have no such complaint.

Feeding History :

Breast fed on demand till 6th month. Later breast milk was complemented with 16 ounces of cow's milk per day till the 1st year. After this, child is being fed on rice, milk, fruits, etc.

Immunisation History :

Child was vaccinated against small-pox at the age of 8th months, had normal reaction to it.

General Examination :

Child about two years and two months old, having marked oedema all over the body, oedema pitting on pressure, no cyanosis, no dyspnoea. The child is very irritable. No glands palpable.

Skin :

All over the body is stretched and shiny, Previous scabetic lesions seen here and there.

Head :

Face is puffy and swollen. Fontanelles closed. Circumference 19".

Eyes, ears, nose and throat Normal

Cardiovascular and Respiratory systems normal.

Abdomen :

Is markedly distended, flanks full, no distended veins seen, moves with respiration. Fluid thrill and shifting dullness present. Liver and spleen not palpable. Measurement around Umbilicus: 26".

C. N. S. N. A. D.

Investigations :

1. Urine ... Acidic
Albumin + + +
Sugar—Nil
Deposits—R. B. C. Pus cells
3/High Granular casts +
2. Blood ... R. B. C. count—3.2 million/
C.mm
Haemoglobin—40%
E. S. R.—45 mm/hour
Total W. B. C.—8000 cells/
c.mm
Differential count
P₇₁ L₂₀ E₇ M₂
3. Blood urea—36 mgm%
4. Blood proteins—5.8 gms%
5. Blood Cholestrol—480 mgm%
6. Blood pressure—80/50 mm. Hg.

Fluid intake and output Chart

Date	Fluid intake in oz	Fluid output in oz	Weight of child in lbs	Circumference of abdomen	Blood pressure in mm. Hg	Urine Examination	General Remarks
28/1	14	4	31	26"	80/50	Albumin + + R.B.C. + Smoky, Pus cells + Granular cast +	Marked odema all over the body. Child irritable.
29/1	18	14	29.75	26"	80/48	Alb + +, Pus cells + smoky	"
30/1	32	22	29.50	25"	80/45	Alb + +, Less smoky Pus cells + Deposits +	Oedema slightly diminished in the face.
31/1	32	10	29	24.5"	80/48	Alb + +, Deposits + less smoky	Oedema is comparatively less.
1/2	32	12	28	24"	80/45	Yellow coloured Alb + +, Deposits—Nil	Considerably less Oedema, child active and alert.
2/2	34	17	26	23.5"	85/45	"	"
3/2	33	16	24	23"	90/60	Alb +, no deposits.	Marked improvement, Swelling very much reduced.
4/2	45	40	23	22.75"	95/60	"	"
5/2	40	38	24	22.25"	90/45	"	"
6/2	42	38	24	21.75"	90/48	No Albumin. No casts No pus cells.	No swelling, except slight distention of abdomen.
7/2	44	40	23	21"	85/46	"	"
8/2	42	40	23	21"	85/48	"	No swelling Patient discharged.

Diet :

The diet was salt free and rich in proteins. Proteins were gradually increased in amount. To start with he was fed, mainly on fluids like milk, barley water, orange juice, etc. for six days. Then he was given one egg daily with a few threptin biscuits for about two days. Eggs were increased to two per

day along with threptin biscuits jelly, a little rice and chapathi.

Treatment :

On admission patient was given diamine penicillin. From the same day he was started on deltacortisone (5mg. each tablet) four tablets per day for eight days. This was followed by deltacortisone two tablets per day,

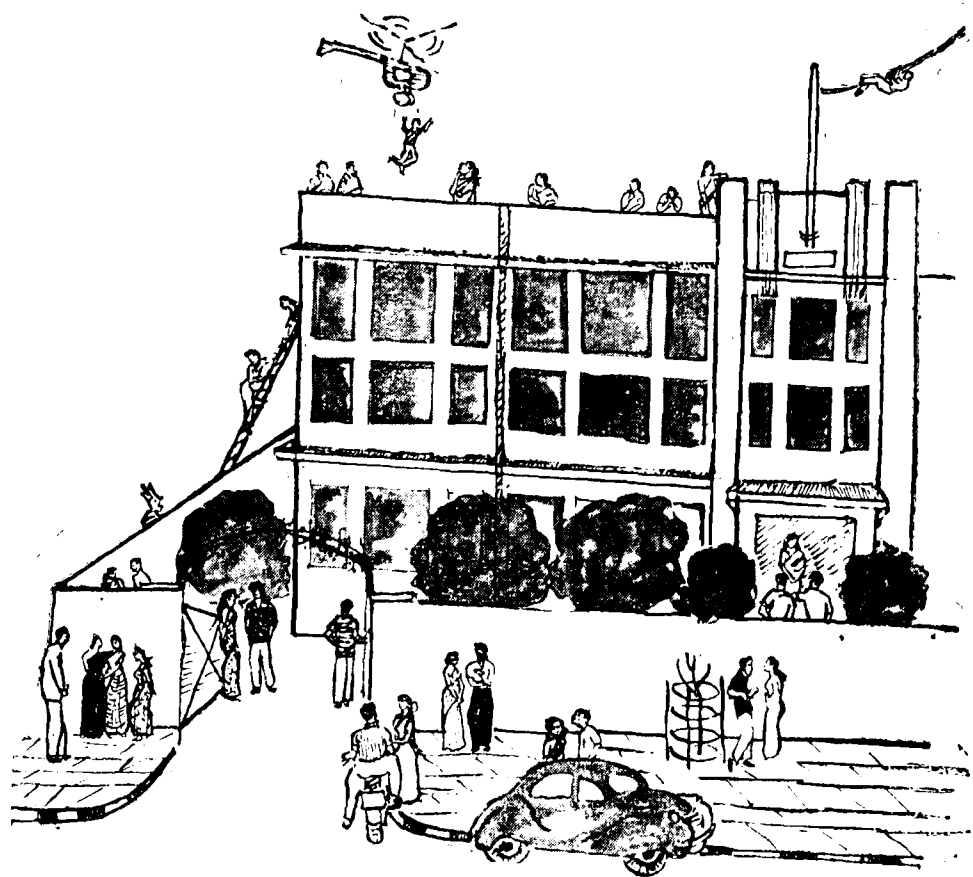
with twenty units of ACTH gel for two days. After this the child is on proteins and iron by mouth, which will be continued for a period of two weeks. Again dactacortisone will be repeated for two days.

Although according to Sir John Conybeare and Mann, the effects of cortisone and ACTH in type II nephritis are very uncertain and hazardous, it is interesting to know that they have given excellent results in the above case. The use of these hormones has resulted in the entire disappearance of albuminuria with simultaneous diuresis in such a short period.

The oedema has completely subsided. No doubt, the immediate result has been good in this case, further progress will depend upon whether there is relapse of symptoms or not. Since relapses are usually seen, the ultimate results are not good.

I am deeply indebted to Dr. Sundaravalli and Dr. V. T. Jayalakshimi for having gone through the case, and for many helpful suggestions they have given me in this matter. I am also thankful to Dr. A. T. John M.D., for having revised the article. ★

"IT'S LOVE THAT MAKES THE WORLD GO AROUND"



Tit-Bits in Neurology

Dr. ARJUN DAS, M.D., M.R.C.P.
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Not infrequently one overhears an examinee say "The neurological cases are a bore, by the time I finish examining this system, the allotted time is over and I can hardly examine other systems, leave alone investigation." In most cases the candidate is right. Of all systems, the nervous system demands maximum physical exertion both on the part of the student and the patient. While there is little truth in saying this system calls for unusual mental exertion, it certainly calls for a greater extent of co-operation on the part of the patient when compared to other systems. The quantum of co-operation varies with the tact of the candidate. In this article I will attempt to dispel the pessimism and diminish the allergy of the students to this fascinating subject by going over a few important points.

As in any other branch of medical science, the knowledge of anatomy and physiology of the nervous system forms the basic foundation of neurologic study. One can directly proportionate the difficulty in understanding a medical subject, to the hallowness of the grasp of relevant anatomy and physiology of a student, particularly so in neurology.

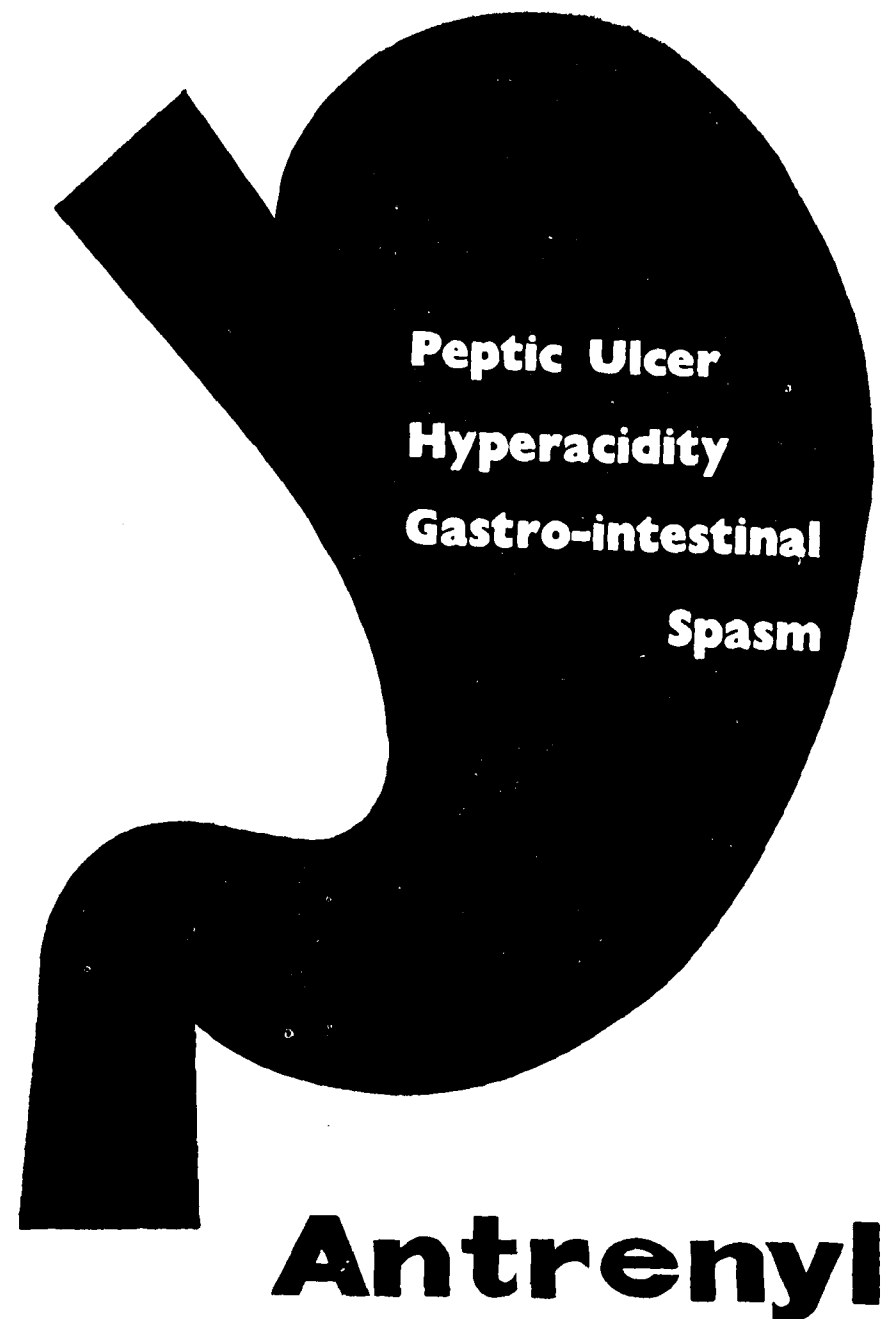
The nervous system is developed from ectodermal tissue and hence both the neurones and the supporting structures, called glia, are epiblastic in origin. Unlike the glia, the supporting tissues elsewhere in the body are mesoblastic in origin.

Before proceeding to discuss some standard types of clinical cases I wish to emphasise that in every neurologic case one must make an 'anatomical diagnosis', that is diagnosis of site or sites of lesions in the neuro-axis. To do

this correctly, eliciting the correct physical signs and their anatomical and physiological correlation are essential. With an anatomical diagnosis more than half the battle is won. What remains to be done is the use of a little commonsense, a little knowledge from the wards and books, and a happy conclusion is reached.

Hemiplegias: This is the commonest type of case met with in the wards and hence in the examination. Hemiplegia can be caused by a lesion in the contralateral a) cortex b) internal capsule c) mid-brain d) pons and e) medulla, or ipsilateral cervical cord above the C 5 segment. Hence an anatomical diagnosis becomes essential before proceeding to discuss the case. Lesions of the motor cortex have to be extensive to cause hemiplegia and are rare. They are commonly due to middle cerebral artery or internal carotid artery occlusion, or to a space occupying lesion. In right handed persons a left cortical lesion will lead to varying degrees of dysphasia depending upon the severity and extent of the lesion. Such a cortical hemiplegia is usually associated with cortical hemianaesthesia.

The next and the commonest level is the internal capsule. The lenticulo-striate artery, a branch of the middle cerebral, supplies this part and due to its perpendicular branching from a major vessel, it is most liable to suffer from the high arterial pressures. Hence its susceptibility. The commonest types are those with thrombosis and embolism. Of those with hemorrhage in this region, only a small percentage survive. In thrombosis and embolism, onset is acute and involvement maximum at the onset. Embolism is almost always associated



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C I B A

with disturbed consciousness while in thrombosis the latter may be relatively less affected. Clinical signs are contralateral paralysis or paresis of lower half of face and both limbs. Occasionally, weakness of the muscles of mastication and tongue may lead to their deviation towards the paralysed side. Incidentally these are the only two cranial nerves, paralysis of which, (be it upper or lower motor neurone type) causes deviation of the part towards the paralysed side. Commonest cause of embolism is rheumatic mitral valvular disease.

Not all cases of left internal capsular lesions in right handed individuals develop dysphasia. Unless and until the thrombosis spreads backwards from the lenticulostriate artery to involve the main middle cerebral artery (which supplies the speech areas) there will be no dysphasia. The aphasia that occurs during the acute stage in some of these cases with subsequent clearance is usually due to cerebral edema around the infarcted area disturbing the function of the rest of the cerebrum. Hence for permanent dysphasia there must be infarction of the cortex; otherwise there is only a dysarthria due to lack of proper control over the peripheral speech apparatus. Hence careful tests are essential to differentiate between these two. Defects in the language and not defects in mere speech should be regarded as dysphasia.

Hemiplegias due to lesions below the internal capsule are infrequent, but are characteristic in the sense that they are crossed hemiplegias. Vascular lesions are often strictly unilateral, but space occupying lesions eg. tumours, frequently involve both pyramidal tracts in the brain stem. At the level of the midbrain for instance a left sided lesion will cause III Nerve paralysis on the left side with either a hemiplegia (Weber's syndrome), or tremors on the right side (Benedict's syndrome), depending upon whether the basis pedunculus or red nucleus are involved respectively.

In the region of the pons and medulla, the cranial nerve nuclei, the motor and sensory

tracts, the middle and inferior cerebellar peduncles, are closely packed together. Hence unilateral lesions in this area will cause various combinations of contralateral spastic paralysis and sensory loss in the trunk and limbs (from interference with long tracts), together with ipsilateral nuclear and nerve palsies, anaesthesia in distribution of the cranial nerves, and ataxia. Of these, nuclear palsies of VII and VI nerves on one side with contralateral hemiplegia is most frequently encountered (Millard-Gubler's Syndrome). Trigeminal palsy anaesthesia, and vago-glossopharyngeal palsy with contralateral hemiplegia are less common and go by different names. Schmidt's Syndrome (IX, X, XI, CN), ; Jackson's syndrome (IX, X, XI, XII CN). The common lesion involving the medulla is the infarction of the lateral portion from thrombosis of the posterior inferior cerebellar artery causing acute vertigo, trigeminal therm-anaesthesia and analgesia on the same side, as well as varying degrees of ipsilateral nuclear palsies of IX, X, XI & XII nerves with contralateral loss of pain and temperature over the body (Wallenberg's Syndrome)

Spinal hemiplegias are rare, paraplegias being commoner. Before leaving the subject of hemiplegias there is another diagnostic syndrome, the Huebner's artery syndrome wherein the artery of Huebner, a branch of the anterior cerebral, supplying the anterior part of the internal capsule through the anterior perforated substance, is occluded. A contralateral facio-brachioptegia with sparing of the leg results. Such a lesion in the dominant hemisphere leads to severe expressive aphasia due to involvement of connexions of the overlying Broca's area. Other causes of hemiplegia not already mentioned are inflammatory masses, viral encephalitis, subdural hematomas, parenchymatous neurosyphilis and congenital causes. Nature of evolution of the disease often suggests the pathology.

Paraplegia: The next commonest type of cases seen is a paraplegia, with or without

involvement of upper limbs. The spinal cord lies within the vertebral column and extends upto the junction of L I & L II vertebrae. At its lower end it terminates in the conus medullaris. There are 8 cervical, 12 dorsal, 5 lumbar, 5 sacral and I coccygeal nerves. While the pia-mater invests the cord closely, the arachnoid extends as low as the second sacral vertebra. The dura-mater lines the bony canal and extends a little lower than the arachnoid mater to the 2nd or 3rd sacral vertebra. Disproportion between lengths of the cord and the bony canal necessitates some calculations. Grossly, segments below S 3 are opposite L I Vertebra; segments S1 & S2 are opposite T 12; above that, to obtain bony levels deduct five segments for lumbar level, three for lower dorsal and two for upper dorsal, one for lower cervical and none for upper cervical.

By paraplegia is meant paralysis confined to the lower limbs. When the upper limbs are involved it is called Brachial paraplegia. Paraplegias may be produced by lesions at various levels in the neuro-axis.

Cerebral paraplegia may be produced by a) a meningioma arising in the falx, pressing on both paracentral lobules; b) thrombosis of superior longitudinal sinus; c) by congenital cerebral lesions (Little's Disease) and d) rarely by thrombosis of an unpaired anterior cerebral artery. In such cases the lower limbs are usually spastic in extension with some cortical sensory loss. Such a paraplegia never goes on to paraplegia in flexion.

Paraplegia due to a lesion of the spinal cord is very much commoner. Spinal paraplegia may be associated either with extension or with flexion of the lower limbs. Paraplegia may also be caused by disease of anterior horn cells of lumbo-sacral region of spinal cord e.g. in ant. poliomyelitis, and rarely progressive muscular atrophy or by a lesion of the cauda-equina (tumours eg. neurofibroma and herniations of nucleus pulposus); or peripheral nerves (peripheral neuritis). Paraplegia

due to lower motor neurone paralysis is of course of a flaccid type with loss of reflexes.

Commonest types in the examination, are those due to spinal cord compression. These show signs of pyramidal disease which in early stages is paraplegia in extension, and in later stages paraplegia in flexion. When the pyramidal tract alone is involved there are two changes occurring. The reticular nuclei in the brain stem, now uninhibited, cause extensor hypertonia, while the lower spinal reflex arcs with flexor predominance, also uninhibited, tend to cause flexor movements. Of these two opposing movements, the reticular impulses predominate. In these cases flexor or withdrawal reflex is seen only when severe noxious stimulus is applied. The minimal sign of this withdrawal reflex is the plantar 'extensor'. But if the progress of the disease destroys the reticulo-spinal pathways the flexor or withdrawal reflexes are no more antagonised, and hence become predominant, leading to flexor spasms and later to paraplegia in flexion and mass reflex. For clinical purposes it is important to find the level of the disease in the cord. There are two methods available for this localisation; one is to find a motor level, and the other is to discover the sensory level, if any. Any lesion below T 2 and above T 9 will cause a) loss of all abdominal and cremasteric reflexes; b) bilateral plantar extension c) Weakness and extensor spasticity in both lower limbs; d) weakness of trunk muscles and e) loss or diminution of all types of sensations below the level of lesion (if there is any sensory loss). Pyramidal fibres are larger in size than other fibres and hence are more susceptible to pressure. Hence in Pott's disease where the dysfunction of the cord is mainly due to pressure from debris, sensory impairment is very rare. But intramedullary tumours, trauma and vascular lesions tend to involve the sensory tracts as well. The intramedullary lesions of course will show the typical syringomyelic pattern. If all the abdominal reflexes are intact and normal, but lower limbs show exaggerated knee,

ankle jerks and planter extensor response, then the lesion is between L I & L 2. Hence as already mentioned the matter of anatomical diagnosis is reduced merely to knowledge of segments or cords subserving different reflexes.

Sensory loss in paraplegia may be of three types. It may be of root distribution eg. a lesion of roots S. I. will cause loss of sensation of all types over the lateral half of the foot, and posteriorly over the lower third of the leg; loss of ankle jerk; wasting of calf muscles and absence of plantar reflex from lateral half of the foot. Similarly, other roots have a typical distribution in the upper and lower extremities. The second type is due to peripheral nerve disease and the loss of sensation over the periphery with a round upper level and weakness of muscles supplied by the involved peripheral nerves (eg. peripheral neuritis due to nutritional deficiency). The third type and commonest associated with cord lesions is segmental type i. e. impairment of all sensations, to a varying degree below the level of the lesion; eg. a lesion at T 10 will cause varying degree of loss of touch, pain, temperature and joint sense below the T 10 segment i. e. the umbilicus.

The most difficult part in a paraplegia is discussion of bladder dysfunction. Even today there is no unanimity of opinion regarding the exact connexions controlling the bladder function. With a few reservations, I will try to simplify the available information. The evacuation centre for the bladder is bilaterally represented in the paracentral lobules in the cortex. There are three controlling influences in a normal healthy adult. The preganglionic parasympathetic sacral outflow from S 2 & S 3 segments end in the vesical-ganglia from where postganglionic fibres innervate the detrusor. It also conducts the proprioceptive impulses from the detrusor. Thus impulses due to stretch of the detrusor are carried to the sacral segment, and impulses for contraction of the detrusor are transmitted by the parasympathe-

tic. In the absence of any other interference eg. in an infant, when the stretch of the detrusor has reached a critical level, the detrusor contracts and completely empties the bladder.

As the infant grows, two more controlling influences develop. The sympathetic system which innervates the bladder chiefly from the I & II Lumbar segments inhibits the detrusor and stimulates the sphincter, thus opposing the actions of the parasympathetic. Still later, cortical centers develop which govern the functions of the bladder by regulating the activity of the sympathetic system. Even when the bladder is full and the parasympathetic centers are stimulated to a critical level, the cortical centres through stimulation of the sympathetic system can postpone the emptying of the bladder for a reasonable period. Similarly even when the bladder is not full, the cortical centres can initiate the micturition reflex by inhibiting the sympathetic system and increasing the abdominal pressure. Thus the bladder which was autonomic in infancy becomes semiautonomic in adulthood.

Disturbance of bladder function in disease:

(a) Any lesion involving the roots or SII & SIII segments or the conus medullaris cuts off the SIII afferent as well as the efferent paths. Such a bladder will be toneless and behave like a semielastic bag. As the urine collects, the bladder distends, and when the intravesical pressure exceeds the force of the contracted sphincter a little urine escapes, thus retention with dribbling overflow results. Later the vesical ganglia may take up the function of the sacral centres and improve the control. Tabes dorsalis affects the afferent paths; lesions of the conus medullaris destroy the sacral centres; tumours of the cauda equina destroy the sacral roots.

(b) Lesions of spinal cord above conus medullaris:

Incomplete lesions (e.g. multiple sclerosis) may affect either the inhibitory fibres destined for sympathetic centres, or the fibres concerned with cortical initiation of micturition. When

fibres to the sympathetic centres are involved, there is difficulty in holding the urine when the bladder is full—precipitancy of micturition. When the cortical tracts are involved, there is difficulty in initiation of micturition—hesitancy of micturition, and later retention with overflow due to lack of inhibition of sympathetic influence. After complete interruption of conduction in the spinal cord above the conus, the sacral centres devoid of the opposing sympathetic or cortical influences, become overactive. The detrusor remains actively contracted, resulting in a small hypertonic bladder with so called 'active incontinence'. The sacral reflex arc is so hyperactive, that any stimulus over the body below the site of the lesion will cause emptying of the bladder as a part of the mass reflex.

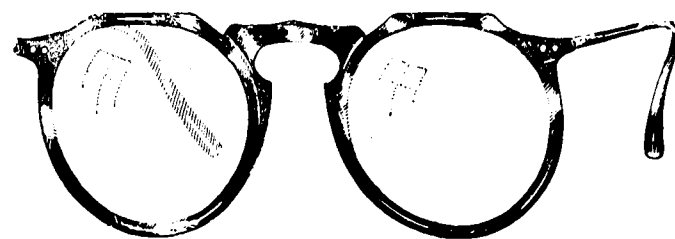
(c) Cerebral lesions, especially in the paracentral lobules, allow the sympathetic to have uninhibited sway. This leads to retention of urine, with reflex complete evacuation once the stretch of detrusor has reached a responding threshold.

This of course is an oversimplification of a complicated system of many anatomical pathways which still elude us.

The other common cases seen in the wards are Parkinsonian syndrome, either the degenerative type or post-encephalitic type; cases of facial palsy, either Bell's type, or due to middle ear disease and occasionally cases of motor neurone disease especially, amyotrophic lateral sclerosis. Most of the students are usually well versed with the many interesting points about these diseases.

In conclusion I may make bold to say that there are a vast number of more interesting problems in Neurology; but for a Final M. B. examination only the simplest, and complete cases are provided. I have not discussed the second part in neurologic diagnosis—pathological diagnosis. But as I have already said, anatomic diagnosis is more than half the diagnosis; and once this is obtained I am sure a regular student who has discussed these cases in the wards will hardly ever miss the bus. ★

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Recent Advances in "Dhobitis"

Introduction :

In the past few decades, progress in this field of Medicine has been enormous, mainly due to improved methods of investigation on one hand, and the modern methods of treatment on the other. Much has been discovered regarding the aetiology and pathology, notably by eminent men in this field like Von Bhosch in the southern states, and Malani and her colleagues in the north.

Synonyms :

Washermanitis, Predilictum Dresslessosum and others. But many of these terms are not in vogue today, and Dhobitis which explains many of the pathological lesions has come to stay. But old names in Medicine are hard to replace.

Definition :

A Disease mainly of college students characterized by shortage of clothing, upsetting the patient's normal daily routine.

Aetiology :

There is a strong hereditary and familial tendency, and Malani in her monogram reported a family where this disease existed in four generations, though the second generation in this series was skipped. In these cases the disease is passed on in the "Y" Chromosome as the recessive factor, normality being the dominant factor. This disease is sex linked hence showing a male preponderance; (this is especially seen in henpecked husbands with extravagant wives.)

The long-held virus theory is no longer tenable. Since no organism was demonstrated in these cases, and since there is no specific serological reaction, the opinion as regards the

aetiology differs between two schools of thought. The first, advocated by Kirkpatrick (1957) holds that deficiency may play the most important role., the deficiency may be in shirts (Von Bhosch 1956) or in pants (Kirkpatrick 1957) or in sarees (Malani 1956). The Deficiency theory is further evidenced by the fact in recent observation, by Kalyan et al, that the patients have a very small suit case or trunk, and Rajan in his great monogram (1955) observes that many patients have no inclination to stitch clothes at all. The other school holds that it is essentially the fault of the dhoby, and hence a true Dhobitis. This view is supported mainly by observers who have quite a lot of clothing, notable among the supporters of this theory are Solomon in this continent, and Salvador in the North.

Recent statistics prove that both these factors either alone or combined play a part, and special investigations are necessary to arrive at a definite conclusion.

There is a seasonal variation in the incidence of this disease; the maximum cases recorded being in the summer months (when clothing become dirtier soon), and less in winter months.

Pathology.

Before the acute attack, the patient may, be seen wearing "frilled collars"; "frilled Pants", folding due to long term usage; "holing" in the garments and "tears", usual findings which are evidence of constant and sometimes continuous usage; fading away of colours in many garments is very characteristic. There have been instances where brown garments have turned completely white,

The fading away phenomenon may be seen even in "fast colour" articles, which only shows the "wear and tear" it has undergone (perhaps liberally).

History In These Cases:

A past history of "Garment Borrowing is very characteristic" If this is of a very long duration, and if failure (is inability to borrow) sets in, the patient may have to be "hostel or house ridden." In certain other cases, chronic lending may be seen. Episodes of absention from college is another characteristic in the past history. The family history may or may not show the familial tendency.

The personal habits are characteristic. If a male he may be a chain smoker, extravagant spender and regular picture goer, numerous extra curricular activities leave no taste for dresses; the latter three characteristics apply equally to males and females.

Signs and Symptoms:

There are two clinical varieties, though the pathologist may advocate a very big classification depending upon the pathology. They are the acute and chronic varieties, and the acute exacerbation of the 'chronic' variety. The chronic variety is much the commoner.

Symptoms.

The patient complains of increasing inability to go to college. In the acute variety the patient may not be able to go anywhere at all, in other words he is hostel ridden. He realizes the pressing necessity to wear the same clothing over and over again. Patient also realizes the strong imprint on his mind of criticism that may hitherto have passed unnoticed.

As a result of not attending to the illness, the patient may have all the attendant symptoms of absence from the college, which may be very grave. In one very interesting case reported in the 'Journal of the Washing

Profession' by Kirkpatrick (1957) it was noticed that the patient had completely forgotten to use a stethoscope!, due he points out, mainly to constant absences from college due to Dhobitis. For more particulars the reader is referred to the original monograph by this author, a splendid work quoting many of his personal experiences!

Signs:

1. "Frilled collars", and "frayed" pant folds are pathognomonic: These, as was pointed out are due to constant and continuous wear and the "tissues" give way under this strain.

2. There may be multiple holes and tears in the garments, especially found in the female side of the question, again due to the same reason detailed above.

3. Colour fading is another characteristic (refer pathology). The colour may entirely fade, or fading may be in patches which gives a characteristic play of colours to the garment worn.

4. Minute observations will reveal the decrease in the number of buttons.

5. Coat wearing, this too constantly and continuously is a recent development. The patient can be seen wearing the hospital duty coat even in a restaurant or a shopping centre.

6. In some instances the patients can be seen wearing a single gaberdine or sharkskin pant, and in the female, silk sarees.

Eg. a yellow saree during a mourning period, such as that for Moulana Azad!

Marks of continuous wear may be seen in these garments.

Constitutional Symptoms:

CVS: a thumping heart is characteristic, especially when seen by a well dressed member of the opposite sex! Auscultation of heart reveals a murmur, usually of the complaining type. It may be soft or rough depending upon the situation.

RS: Heavy breathing and frequent sighs are constant findings.

CNS: Patient may be agitated, angry, and noisy or may be morose and starts brooding over the situation.

Diagnosis:

Is easy, with a history of dress borrowing, absention from the college, these being the characteristic clinical findings, an additional point is the possession of gaberdine or tweed pant, usually of a colour that goes well with many shirts, or a silk saree with the same characteristics.

Complications:

Two dreaded complications are, that the patient may turn into a chronic borrower of clothing, or the patient may go into a 'status dresslessness' with acute exacerbations.

Course And Prognosis:

The natural history of the disease, if allowed to pursue its own course is uneventful, and many cases have recovered without treatment, especially after passing out from the college, except when complications set in. Prognosis is good in all cases, but prognosis must be withheld in cases which are intractable to treatment, or those which develop complications. In a recent statistics by George (1957) it was found that only 2% of cases went into complications, about 96% progressed well with treatment, the rest 2% improved without treatment.

Investigation:

1. A total and differential count of dresses is important in all cases. There may be a generalised garmentopaenia, or there may be relative pantopaenia, shirtopaenia or sarceopaenia.

2. Dhoby efficiency tests

3. Dhoby washing time

Both these are decreased in Dhobitis.

4. An assessment of the patient's will to buy clothing is important, because in most cases this is wanting.

5. An assessment of the capacity of suitcases and garment-bags. These are usually

MC—13

small or they may be even absent in some rare cases.

6. An assessment of potential garment lenders in the patient's circle of friends.

Treatment:

Treatment may be prophylactic or curative. Curative treatment may be surgical or medical.

Prophylaxis:

1. The patient must stitch clothing periodically, and the total count for a normal person is around eight sets (pants and shirts for men; sarees and blouses for women).

2. A regular reliable dhoby must be chosen; not necessarily a costly one.

3. Avoid borrowing or lending garments.

4. Sparing use of garments and avoidance of dirtying garments unnecessarily.

Curative:

The older methods of treatments, like washing the clothing by themselves, mending the minor deficiencies and wearing gaudy coloured garments bought either at school, or at the arts college, have all been given up. The present methods are convenient, but a little costly.

Medical:

In acute cases the patient may be advised to buy a gaberdine pant or silk saree, of a colour that may go well with all the colours (preferably white—Von Bhoschoh). Secondly an initial dose of Mistura garmantiva may be given, followed up by frequent doses of the same until the final garment count is about eight sets in all. The initial booster dosage is sometimes spoken of as "garmantization" (Gunston 1958)

In chronic case the treatment must be prolonged. The same drugs are used. But here the "Garmantizaing" dose must be a little larger.

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April 1958

Two typical prescriptions are given (from "Therapeutics in Garmantitis-Dhobitis" Paul Moni 1955).

For males.

Mist. Garmantiva:

For Mr x.

Pantum album ... Nos. iii
Pantum chromatum ... Nos. i
Slirtum album ... Nos. iv

To be bought immediately and repeated if necessary.

For females:

Mist Garmantiva.

For Miss x.

Sarecosum albicans ... Nos. i
Sarecosum chromatum ... Nos. iii
Blousum muliplum ... Nos. iv

To be brought immediately. Repeat if necessary.

Surgical

It can with impunity be said that surgery has not improved as such in Dhobitis. Surgical remedies are used in many parts of the world, but that which is interesting from our point of view is that done in the North. Only the broad outlines are given here.

For shirts and sarees.

Collar turning for frilled collars (Von Bhoschoh). Multiple grafts with different colors (Kirkpatrick)

For pants:

The shortening or lengthening- operation of Von Bhoschoh for frayed folds.

Generally garments have been made out of certain clothing, bed spreads, table cloths, etc. but it is not practised here so much as in the North.

References:

1. Modern Approach to Dhobitis (Dr. Kirkpatrick 1957) (Published by the Association of Dhobies)
2. Complications in Dhobitis (Von Bhoschoh 1955)
3. Borrowing as a Mania in Dhobitis (Journal of Psychiatry 1958) (Volume iv ... No. 3) page. 79.
4. Journal of Washermen (1958 Volume i No. 14)
5. Status Dresslessness (Von Bhoschoh 1955)
6. Therapeutics in Dhobitis (Paul Moni 1955)
7. Treatment and Management of Dhobitis. (Miss Malani 1956) ★

*Education makes a people easy to lead but difficult to drive ;
easy to govern but impossible to enslave.*

—Lord Broughan

*At twenty years of age, the will reigns ; at thirty the wit and
forty, the Judgement.*

—R. Franklin

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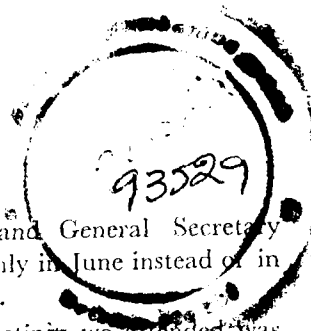


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M. ARUNAGIRI RAJ,
General Secretary



Annual Report 1957-58

The President and General Secretary assumed office only in June instead of in March as is customary.

One of the first meetings we attended was that of representatives of the colleges affiliated to Madras University under the presidentship of Mr. C. D. Deshmukh, Chairman, University Grants Commission. We requested Mr. Deshmukh to grant financial aid in order to expand the scope and work of the Medical Relief Wing of the Madras Medical College.

The first meeting was a condolence meeting, that of Mr. John Sundara Rao, Ex-professor of Biology.

The elections for the various posts were held in the month of July and most of the posts were keenly contested.

The inaugural address of the Association was delivered by Mr. Mohan Kumaramangalam, Bar-at-Law, on 29th July, 1957. There was an entertainment after the meeting.

A condolence meeting was held on 5th August for the sad demise of Dr. B. T. Krishnan, M.Sc. Ex-Principal.

A batch of students from the California University visited our college and hospital on 10th August. A luncheon was given to them. There was also an informal meeting where cultural and academic views were exchanged.

In our Independence Day Celebrations on 15th, Mr. Manickavelu Naicker, (Health Minister) took part.

Apart from the various executive committee meetings, we had a general body meeting, where we revised the rules and bye-laws of the Association, modifying them to suit the present circumstances, followed by an interesting question hour.

The reception to the graduates was given on the 25th with Mr. R. Venkataraman, Minister,

in the Chair. Dr. Chandrasekar, Director of the Institute of Population Studies, delivered the address to the graduates.

The Third Medical Exhibition was conducted in January, 1958, from 4th January to 16th January with great success, the collections exceeding all previous records.

The elections for the President, Secretary and Fine Arts Secretary of the ensuing academic year were held this month. Mr. V. T. Balaraman, Mr. Ramakrishna Patnaik and Mr. Somasundaram were respectively elected, the latter two being unanimous.

The Annual sports-day was celebrated on the 20th February.

An Intercollegiate Oratorical competition in English was held on the 24th, and the winners were:

C. K. Prasada Rao	Ethiraj College	Miss. Sarah Chandy
Shield :	Team	Miss. Nirmala Appadurai.

Individual :	
Awarded by	I Prize Mr. K. A. Varadan.
Dr. R. G. Krishnan, F.R.C.S.	Presidency College
Dean	II Prize Mr. Sivaramakrishnan, Law College.

Before I close, let me remind my successor that we have asked for an open air theatre for our college under the Central Government Scheme, and I request the incoming General Secretary to carry on the fight till we obtain the open air theatre.

I take this opportunity to thank our Dean, staff, members and you for the kindness and co-operation given to us during our term of office.

I would like to give a bit of good news to the incoming office bearers, that is we are not leaving any new debts for them to clear. ★

Laughter, the best Medicine

"Grandma, at what age men are the most fun?" asked the College coed

"Well, men are like record players, explained the old lady". "They play at different speeds, but they are nice to have around whether they are thirty three, forty five, or seventy eight!"

A Professor: A man who talks in other pupils' sleep.

A Chinese woman bothered by her childless marriage went to an eminent gynaecologist with a problem, "Take off your clothes—lie down on the table", he ordered gravely.

The woman hesitated, then came out with "But, doctor, I do want a Chinese Baby".

The Matrimonial life cycle may be likened to the structure of a classical drama:

Prologue	The meeting.
Dialogue	The engagement.
Monologue.....	The marriage.
Epilogue	The divorce.

In a chemistry class the students were being questioned by the professor.

The professor asked several questions and then it was one of the last benchers turn to answer.

"You..." said the professor pointing to this fellow, "What is steam?"

"Steam? Why professor, that's water that's crazy with heat.

A Skeleton: What a medical student defines as a pile of bones with the people scraped off!

An elderly gentleman who was walking along a road noticed a crowd of small boys sitting in a cricle around a puppy dog of doubtful pedigree.

"What are you doing with that dog?" he asked kindly, "Whoever tells the biggest lie wins the dog", said one of the boys. "Oh!" said the man, "I am surprised at you boys, for when I was a small boy like you I never told a lie". There was a moment of silence. Then one of the boys finally spoke up. "Give the gent the dog", he said.

Sign in Doctor's office: "Ladies in the waiting room are respectfully requested not to exchange symptoms. It gets the doctor hoplessly mixed up".

Logic: Marriage is an institution. Love is blind. Therefore marriage is an institution for the blind.

He knows: The underpaid professor, on being informed, that he was the father of triplets, rushed into the hospital and burst joyously into his wife's room. The nurse was not pleased to see him.

"You can't come in here covered with germs", she said. "You are not sterile".
"You're telling me I'm not!" replied the professor.

The Madras Medical College Association RULES and BYE-LAWS (Revised on 14th July, 1957)

1. Name: The Association shall be styled "The Madras Medical College Association."

2. Aims and Objects: To foster a spirit of co-operation and brotherhood among the students of the College, and to promote their social, intellectual, moral and physical welfare by:—

- arranging for lectures on subjects of general and scientific interest.
- arranging for debates, social entertainments, games, etc.
- receiving the Graduates of the year at an "At Home",
- conducting the College Magazine and
- conducting the Inter-Collegiate Debate for the Dr. C. K. Prasad Rao Shield.

3. Membership and Subscription: Membership of the Association is compulsory to all students of the College for which they shall pay an annual subscription of Rs. 2/- payable at the commencement of each year (vide the Principal's notice of the 7th September, 1925).

4. Life Members: Any member of the Staff on payment of Rs. 20/- if a Professor, or Rs. 5/- if an Assistant Professor or an old boy of the College shall be considered a life member.

5. Constitution: The affairs of the Association shall be managed by a general Executive Committee for the Association and a special Magazine Committee.

(a) The Executive Committee shall consist of:—

- A President (Ex. Officio Dean).
- A Student-President elected from the senior students. (final or fourth year senior) of the College.

(3) A student Vice-President (fourth year or final year)

(4) A Secretary (Student final or four year)

(5) An Assistant Secretary (student pre-clinical)

(6) A Treasurer (One assistant professor)

(7) General Editor

(8) Associate Editor

(9) (i) One representative from each of the six classes (Pre-professional I, II, III, IV and V year M.B., B.S.).

(ii) One representative from B. (Pharmacy) class.

(iii) One representative of the lady students.

(iv) Secretary of the Madras Medical College Athletic Club (co-opted)

(v) Representative from the B.D.S. Class.

[*The Student-President shall ordinarily preside over all meetings of the Association, Executive Committee Meetings included.]

(b) The Magazine Committee shall consist of:—

(1) A President (Ex-Officio Dean).

(2) A Vice-President (one Professor to be elected by the General Body), who will be responsible for the finances of the Magazine.

(3) A General Editor elected from among the Senior students (fourth or final year)

(4) An Associate Editor (Student: fourth or final year)

(5) The General Secretary of the Association shall be the Secretary of the

Magazine Committee. He shall also be the Publisher of the Magazine.

(c) The Fine Arts Section shall consist of:—

- (i) A President (Ex-Officio) Dean.
- (ii) Joint Secretaries: One from men students and the other from the lady students of the College.
- (iii) The General Secretary shall be the Secretary of the Fine Arts Section.
- (iv) The Treasurer of the Association shall be the Treasurer of Fine Arts Section.

(v) Six other members (three men and three ladies)

(d) The Canteen Committee shall consist of:—

President (Ex-officio) Dean.

A Treasurer.

Secretary (Treasurer of the Association)
Class Representatives.

The Canteen Committee shall examine any complaints regarding the canteen, and do the necessary by instructing the canteen contractor.

(e) The Sports Committee shall consist of:—

1. A President (Ex-officio) Dean.
2. A Vice-President (One Professor to be nominated by the President).
3. A Treasurer (One member of the staff to be nominated by the President)
4. Two Members of the staff. (To be nominated by the President)
5. The Physical Director.
6. The General Secretary of the Association.
7. The Sports Secretary.
8. The Captains of the respective teams.
9. The Ladies' Sports Secretary.

6. Elections, Committees, etc. The Student-President and the General Secretary of the Association shall be elected (voting by secret ballot) towards the end of the Academic year (about the last week of February).

The rest of the Committee including the Magazine Committee shall be elected, voting by secret ballot, at the beginning of the college sessions (2nd week of July).

All the members of the Association can cast their vote. (In the case of Internees and House Surgeons they can cast their vote if they are members, by paying the annual subscription to the Association)

Procedure for Polling :

The marking of the ballot paper shall be done secretly, but the actual casting of the vote should be done openly under the vigilance of a member of the Executive Committee appointed by the General Secretary.

Interim vacancies in the Committee shall be filled by the remaining members of the Committee, subject to ratification by the General Body within not more than a month.

No act done by the Committee shall be deemed invalid by reason of any vacancies existing in the Committee, provided the vacancies are not more than one-third of the original number.

Any member absents himself for three consecutive meetings without any valid reason shall cease to be a member of the Committee. The vacancy thus created shall be filled by a fresh election.

Committee Meetings: The Committee shall meet once in three months or earlier if occasions arise.

Quorum: The quorum shall be five for the General Executive Committee and four for the Magazine Committee.

7. Procedure in convening Extraordinary meetings: The General Secretary or the Student President of the Association shall call for a General Body meeting after informing the Committee members or:—

- (i) A written requisition from 150 members or 30 per cent of the members, whichever is less;

- (ii) A written requisition from five Committee members. The Committee shall then meet and call for a General Body Meeting.

8. Powers of the Committee: The Executive Committee shall have the power to make such bye-laws as it may deem necessary from time to time for the management of the affairs of the Association provided they are not inconsistent with the spirit of the Association, such bye-laws to be brought up for ratification at the next General Body Meeting.

The Executive Committee may appoint a Sub-Committee from among, themselves or a special Committee from the members of the Association for transacting any particular business and may delegate any of its powers to such Committees.

9. The working of the Association: (i) The General Executive Committee shall have control over all the affairs of the Association including the supervision of the policy of the Magazine, but the details of the latter shall be worked out by the Magazine Committee.

(ii) The Secretary of the Association shall be directly responsible for arranging the details of the social gatherings, including the Graduates' Reception, and the periodical lectures; and for the maintenance of the books of the Association.

The Secretary to the Magazine Committee, who is also the Secretary of the Association, shall be responsible for the regular publication of the Magazine and for the proper maintenance of the books concerning the Magazine.

10. Finances: This shall come under two heads:

(i) Funds of the Association. (ii) Funds of the Magazine.

(i) Funds of the Association: These shall consist of (a) Subscriptions paid by the students at the commencement of the year; (b) Donations from Professors, Assistant Professors and old boys; (c) Special subscriptions raised

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from students on special occasions, if any. The Executive Committee shall have control over the finance, the Treasurer being authorised to operate the account, and being responsible for the maintenance of correct accounts. The accounts shall be passed by the Executive Committee once in two months, and be audited at the end of each year by an independent auditor appointed by the committee. The auditor's certificate with his remarks shall be appended to the balance sheet in the Annual report. The funds of the Association shall be deposited with the Post Office Savings Bank or any other recognized banking institution in the name of the Principal Ex-Officio President (separate from the Magazine Fund)

(ii) The Magazine Fund: These consist of (a) a compulsory subscription of Rs. 4/- per annum raised from the students of the Pre-Medical, I, II, III, IV, and V year classes (b) Subscriptions from other students either of this college or other institutions (c) subscriptions and donations from others, and (d) income from advertisements. The Magazine Committee shall have control over the finances of the Magazine. The Treasurer of the Magazine Committee shall, with the aid of a paid or Honorary clerical assistant who may be given an honorarium, maintain a register of the names of subscribers, be responsible for all receipts, and maintain an accurate account to the expenditure, with all the vouchers and counterfoils.

The accounts shall be passed by the Magazine Committee once in two months and shall be audited at the end of each year by an auditor appointed by it. The auditor's certificate with the remarks shall be appended to the annual report.

The receipts of the Magazine shall be deposited just as the Association Funds, but separately.

* (N. B.—The services of one of the clerks attached to the College may be engaged to help the Secretary in maintaining the registers and other papers and for the other clerical

work. It shall be his duty to see to the proper distribution of the Magazine and maintaining file, books (business file, books, auditor's file, Minutes Book etc.) He shall not be entrusted with any direct financial responsibility.

A peon from one of the College menial staff will also be engaged to help in distributing the issues to the members. The remuneration for these will be fixed by the Magazine Committee.)

11. The Magazine: (1) The Magazine shall be called The "Madras Medical College Magazine"

(2) (a) It shall be issued twice during the year (from July to April) or oftener as considered expedient by the Committee.

(b) Articles of a controversial nature shall be approved by the Committee before publication.

(3) Subscription: (a) Rs. 4/- from students, House Surgeons, and House Physicians (b) Rs. 4/- from others, in each case excluding postage.

(4) Advertisements: It should be the aim of the publisher to get as many advertisements as possible for which he may, subject to the approval of the Committee appoint agents, on reasonable commission.

The nature and rates of advertisements shall be left to the discretion of the publisher subject to the approval of the Committee.

12. Miscellaneous. (a) The annual meeting shall be held towards the end of February before the College closes, at which the annual report of the year shall be presented and passed and a Secretary for the next year be nominated.

(b) The quorum of a General Body meeting shall be 30 percent or 150 whichever is less

(c) The new Secretary shall take charge soon after the election.

(d) The Secretary shall record the proceedings of meetings, business, general or committee.

(e) Not less than three days notice shall be given for all meetings.

(f) Any amendment of the rules or any other matters concerning the Association proposed by any member shall be considered at the next business meeting by giving 15 days notice to the Executive Committee.

(g) These rules shall not be altered in any General Body Meeting, unless 40 per cent of the members are present.

Madras Medical College, } M. ARUNAGIRI RAJ,
July 1957. } General Secretary.

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