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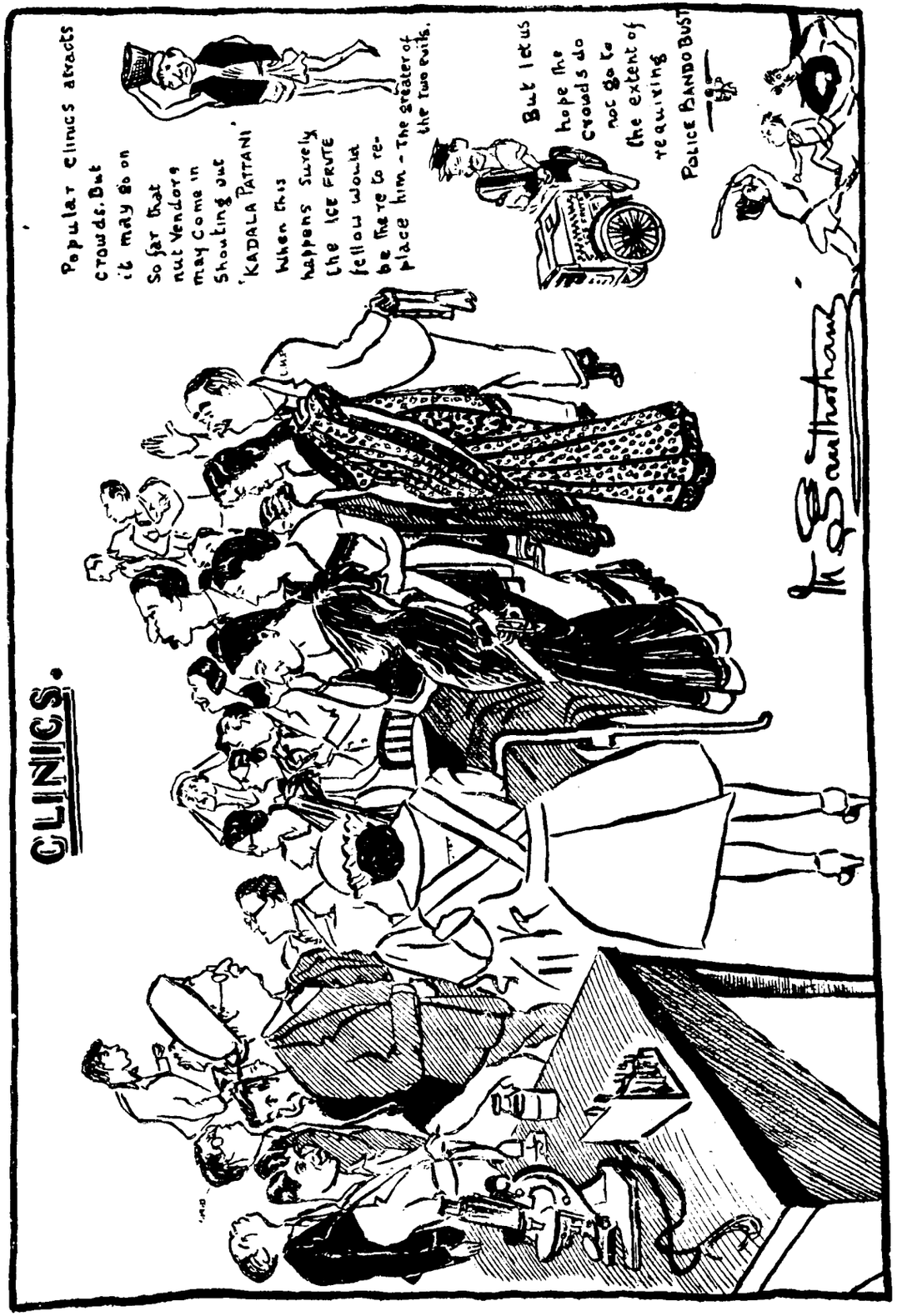

THE MADRAS

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VOL. XV OCTOBER 1935 No. 1

Some Notes on Opium Addiction and the Modinos Withdrawal Method.

BY CAPT. M. GERARD KELLY, I.M.S.,

Additional Professor of Medicine.

Preface.

The care and treatment of convicted drug addicts is a problem which has long exercised the minds of Jail authorities. In 1932, when the Health Section of the League of Nations communicated the striking success of the Modinos' Treatment of Drug addicts in the Netherland Indies, the Inspector-General of Prisons, Burma, in consultation with the Inspector-General of Civil Hospitals, Burma, immediately determined upon an extensive trial of this unique and much lauded treatment. Whereupon the Jail Superintendents of the Burma Jail Department were instructed to employ the Modinos' Treatment in all suitable cases of drug addiction and at the same time they were exhorted to maintain careful records of all such cases in the Special Drug Addict Case Sheets supplied.

Altogether 353 cases of opium addiction undergoing sentences in our Jails were treated by the Blister Serum Method of Modinos under the supervision of the Jail Superintendents and the task of collecting and summarizing their observations has devolved upon the writer.

My remarks on the incidence, etiology, etc., of addiction are necessarily based upon the data provided by the interrogation and physical examination of these convicted addicts and are intended to convey some slight idea of the magnitude and scope of the Opium problem.

As the period of the observation in Jail was necessarily short owing to the low average duration of imprisonment of the addicts treated and as only a very occasional follow up was possible, our conclusions with regard to the Modinos' treatment cannot be regarded as final. They nevertheless suggest that although Blister Serum has failed to justify the optimistic reports of its distinguished advocate, it is still a valuable method of withdrawal which will probably repay a more complete survey than we have unfortunately been able to obtain.

Some definitions of an addict and of addiction.

Full and accurate definition would only be possible in the light of complete knowledge. And at present, although the literature on Drug Addiction has assumed enormous proportions, our knowledge of the subject is incomplete. Accordingly not having the temerity to attempt a final and rigid definition of either an addict or of addiction, we have selected from the existing surfeit of definitions the most generally accepted and representative ones propounded by Sir H. Rolleston, our American confreres and others.

An addict is defined as "a person, who, not requiring the continued use of a drug for the relief of the symptoms of organic disease, has acquired, as a result of repeated administration, an over-powering desire for its continuance and in whom withdrawal of the drug leads to definite symptoms of mental or physical distress, or disorder."

Or an addict within the meaning of the act is "Any person who habitually uses any habit-forming narcotic so defined in the Act as to endanger the public morals, health, safety or

welfare or who is or has been so far addicted to the use of such habit-forming narcotic drug as to have lost the power of self-control with reference to his addiction."

Or addiction may be defined as "that condition of mind or body induced by drugging which requires a continuance of that drug and without which a serious physical or mental derangement results."

"Addiction has no definite entity of its own but is merely a syndrome which is one form of expression of an underlying mania state which may take on many other manifestations, *e.g.*, a woman who became in turn a cocaine maniac, a gross alcoholic, a tobacco maniac, a dance maniac, a purgative maniac and a "spendthrift maniac" who bought soaps, perfumes Teddy bears and other queer articles in wholesale quantities."

Or addiction can be described as "an impulse-driven search after ease, luxury, intoxication or stupefaction. In the last resort each mania has need as its basis, either to gain happiness or diminished [illegible]ness or banish it or both combined."

Prevalence and incidence.

There are 53,000 legal opium consumers, that is licensed opium eaters and smokers, in Burma, with a population of 14,667,146.

The number of illicit opium consumers is probably not less in view of the fact that 6·15 per cent of the convict population are, as far as can be ascertained, unlicensed opium consumers. Licit and illicit traffic have been aptly likened to "two streams, one open to the day on the surface and the other hidden underground, both closely connected and both running more or less in the same general direction." And so we estimate that approximately 7 per cent of the Non-European

population of Burma consume opium in one form or another. Addict density corresponds closely with population density and the opium trade routes, *i.e.*, the large Urban centres of Rangoon and Mandalay and the Frontier Districts.

A study of the racial incidence of addiction reveals the fact that opium consumption is approximately 20 times more frequent amongst Chinese residents than amongst the indigenous Burmese. Indians enjoy the distinction of being the least addicted to opium or for that matter to any other drug but the especial liability of the Sikh to the opium habit is observed to obtain here as it does in the Punjab.

Amongst the Chinese, opium consumption may be found in all grades of Society; in the case of other nationalities it is most common amongst the poorer classes.

Opium consumption in Burma appears to be a predeliction of the male sex excepting in perhaps the Kachin Hills and the Shan States where female addicts are said to be not uncommon. This is indeed fortunate as established addiction in women is notoriously difficult of cure presumably due to the predominence of the underlying psychoneurotic factor in the female.

The number of Chronic opium abusers in the medical profession appears to be negligible.

The majority of convicts who are also opium addicts began their criminal careers as a direct result of their narcophilia. They commonly commit theft to secure their vital ration.

Addiction is largely confined to the third and fourth decades of life. The younger age group is the most prolific of addiction as might be expected at adolescence when adjustment to environment reaches its most critical phase and when inherent nervous or mental defect is exteriorized by over-reactions-drug addictions or failure of reaction schizophrenia.

Etiological Factors.

The Psycho-Neurotic Factor.—The basis underlying most cases of addiction is an inherent mental or nervous instability with consequent general failure of adaptation to the difficulties and responsibilities of life.

Usually by contagion the neurotic discovers relief for his pains or may be euphoria in easily obtainable opium. The depressant reaction of the narcotic is more profound and less tolerable in his case than in that of the individual endowed with a sound nervous mechanism. And so the neurotic succumbs to further addiction as the easiest way out of his distress. Thus the vicious circle of addiction is formed The repeated " cures " and relapses of the addict further suggest a neuropathic origin. There is universal agreement that " The best amethyst against addiction is the possession of a normal psyche."

According to Kolb, unstable personalities are devisible into two classes.

(1) Those presenting the usual stigmata, and

(2) Those having an " inebriate type of personality."

The " cured " addict who relapses without apparent cause is comparable, he says, to the inebriate type of personality who spasmodically goes on the spree." The persistent habit of drinking strong coffee is said to predispose to neurosis and thus to addiction. In Tunis, tea drinking is stated to have assumed the character of a minor addiction. The excessive consumption of either suggests a neurotic taint which later may leads to a major addiction. With regard to the influence exerted by heredity and family environment we found a family history of addiction in 15 per cent cases—chiefly Chinese.

Psychopathology.—The most important fact in the pathology of most Psychoneuroses and in all cases of addiction is said to be psychological regression.

Mental Factor.—Mental defectiveness does not appear to predispose to addiction. Nor does insanity seem to be a common finding (we found a history of insanity in only ·77 cases) excepting in the terminal stages of addiction when mild chronic delusional insanity sometimes supervenes. Suicide is said to be not infrequent.

Self Treatment of Physical Ailments.—Self treatment of physical ailment was the precipitating cause of addiction in 56 per cent of our cases.

The emotional, oversensitive and unstable subject is less able to stand pain or discomfort than a person of sound mental integrity. By contagion he learns of the power of opium to reduce the brain's capacity for registering pain and so without over much persuasion, he drifts into ever-increasing add ction in his efforts to suppress the pain of his particular affliction—Arthritis, etc.

Incidentally Morphinism is said to prolong organic diseases. It inhibits protoplasmic activity and thus may prolong recovery from various chronic affections. Its omission is often followed by amelioration of symptoms and somestimes cure.

Contagion.—Contagion is a very important factor, 30 per cent cases specifically attributed their addiction to this cause.

The Burman is essentially sociable and responds easily to his environment and so he readily yields to the popular custom of opium eating or smoking symbolic of good fellowship in the East. The importance of convivial considerations and environmental factors in precipitating addiction is perhaps exaggerated by the tendency of the neurotic to transfer responsibility for his addiction to his friends or to extraneous circumstances. Moreover neurotics tend to come together to exchange advice and sympathy so agreeable to the self-centred introspective mentality.

Euphoria.—Euphoria accounted for 14 per cent cases. Unstable personalities are sometimes driven to addiction by an overwhelming desire for an euphoric affective tome. Narcotic euphoria seems to require the consumption of extraordinarily large amounts of opium for its production as noted by Chopra.

Overwork and Fatigue.—Are the principal causes of morphine addiction in England. In Burma these are negligible factors, excepting perhaps on the Indo-Chinese Frontier where the mulcteers eat opium to give them the necessary strength for long sustained physical effort.

Other Associated Addictions.

With regard to associated addictions we found 3·7 per cent Alcoholics in our series. Morphomaniacs take cocaine for a change but this combination is probably more commonly observed in Western European countries than in Burma.

Withdrawal of Opium—Apomorphinism.

The mechanism of withdrawal is a complex problem closely related to that of tolerance and like the latter it has multiple explanations which will be merely enumerated.

(1) The Neutralization Theory.

(2) The Lecithin—Cholin Theory.

(3) The Theory of Toxins.

(4) The Release Theory.

(5) The Tissue Hydration (water imbalance) Theory.

(6) The Exodic Stimulation Theory.

(7) The Endocrine Hypofunction Theory.

(8) The psychosis Theory.

(9) The Stimulation—depression Theory.

When an addict for any reason is deprived of his drug of addiction release phenomena supervene. These are the exact counterpart of the usual action of the drug with as might be expected, a strong psychogenic background. Their intensity varies with the original personality, type of addiction, dosage and duration of addiction.

A somewhat exaggerated idea prevails of the danger of withdrawal in the otherwise healthy addict. To this impression the attitude of the addict himself in no small measure contributes as does the very occasional occurrence of sudden death on rapid withdrawal in an unsuspected case of fatty degeneration of the heart. With due regard to gross physical changes especially of the myocardium we have safely employed the rapid withdrawal method in our attempt to evaluate the control exercised by blister serum on withdrawal symtoms in their full intensity.

Theory of Blister Serum Method.

Modinos held that heroin, cocaine, etc., were capable of acting as antigens and producing in the serum saturated with them antagonistic properties, that is to say, anti-bodies. Further investigators, however, have shown that alkaloids do not form anti-bodies, thus disproving Modinos' hypothesis.

Our idea of the rationale of blister serum is the antithesis of Dr. Modinos'. In Narcophilia blister serum appears to act by the production of varying degrees of hypersensitivity to the drug of addiction. This resentment by the tissues against the intrusion of the drug is an anaphylactic state whereas "Immunity is assimilation" (Morley Roberts).

Employment of Blister Serum in Infectious Diseases

Modinos appears to have employed Blister fluid with excellent results in the treatment of Typhoid, Influenza, Rheumatic Fever, Gonorrhoea and Typhus for the last 21 years. Its advantages over Blood serum, he states, are that—

(1) it is easier to obtain,

(2) its bacteriacidal power, owing to the concentration of Leucocytes-50,000 per c.m. of which 70 per cent are polymorphoneuclears, is greater than that of the corresponding amount of the Blood serum.

He also advocates the prophylactic use of Blister serum in various virus diseases, measles, etc.

Contra—Indications to Blister Serum Treatment.

The contra-indications mentioned are—

(1) Diseases of the Kidneys. (Owing to the use of Cantharides) and

(2) Incurable Diseases (when opium or morphine are the only means of giving relief).

Albumen and casts may be excreted during an attack of narcotic poisoning without leaving any subsequent evidence of impaired renal function. Albuminuria without tube casts may develop in morphomaniacs in certain cases.

Morphine in therapeutic doses has no deleterious effect on the kidneys and albuminuria does not necessarily contra-indicate opiates; in fact, some cases are improved by the exhibition of opium.

Technique.

The urine is previously tested for Albumen. Emplastrum Cantharides 8 c. m. square and one millimeter thick is applied over the abdomen. After 16 hours, the blister fluid is drawn off with a syringe and injected subcutaneously into the abdominal wall or the upper arm. The amount of serum so injected is progressively increased from 4 to 6 c. c. This procedure is repeated twice or thrice and even up to 6 times at 3 day intervals.

Classification.

Addicts have been broadly divided into 2 groups according as the syringe is or is not used.

(1) The Syringe—Using or Depressant group.

(2) The non-syringe using or Schizophrenic group which includes Alcoholics.

For the purpose of our enquiry into the efficacy of the Modinos' treatment opium addicts were classified as under :—

(1) Smokers.

(2) Eaters.

(3) Smokers and Eaters

(4) Eaters and Injectors.

(5) Smokers, Eaters and Injectors.

Race.	Percentage of smokers.	Percentage of Eaters.	Percentage of Smokers and Eaters.	Percentage of Eaters and Injectors.	Percentage of Smokers, Eaters and Injectors.
Burmese ...	16·4	61·2	25·6	1·6	·8
Chinese ...	44·59	24·32	31·08	...	...
Indians * ...	...	57·14	35·71	7·14	...

* Only 14 Indians were investigated hence the above percentage is not a reliable index : it is probably too high.

Opium Smokers. 74.

Opium smoking constitutes the third commonest type of opium addiction. It is the form adopted characteristically by the Chinese with whose religious and philosophic outlook it is said to be intimately connected. In Burma the Chinese seem to have introduced its technique amongst the Burmese to a certain extent and amongst the Indians to less degree.

In our series of opium smokers self treatment for physical ailments accounted for the majority of cases. Devotees of the pipe and popular superstition commend it as a valuable alleviative and prophylactic measure. In China convivial consideration outweigh health considerations.

Opium smokers have been divided into 4 classes :

(i) Occasional smokers—Potential, but not actual addicts.

(ii) Regular smokers.

(iii) Smokers of " Shireh " or opium dross.

(iv) Smokers of mixtures of opium and opium dross. Addicts of the two latter classes are stated to be nearly always physical and moral wrecks.

Opium smoking is, however, the least harmful form of addiction. As compared with opium eating in involves more laborious preparation and method of intake; the quantity required to produce the desired effect is greater and the desire to increase the dose is less marked. Furthermore 85 per cent of the alkaloidal content of opium is destroyed in the process of combustion leaving 15 per cent opium alkaloids contained in smoke. Morphine however can withstand a temperature of 160—200 degrees centigrade and thus it imparts to opium smoke its delcterious effects. At all events absorption is slow and the opium smoker may carry on for years without any troublesome symptoms or signs.

Some degree of pharyngitis and bronchitis is common in opium smokers. Owing to weakening of the lung tissue their liability to the development of Pulmonary Tuberculosis is increased. On denarcotization especially, opium smokers and more particularly smokers of " Shireh " or opium dross not infrequently exhibit well marked gastric crisis as part of a hypervagotonic syndrome.

The most enthusiastic advocates of the Modinos' method are Sie and Hung who were so favourably impressed by its efficiency that they now use it to the exclusion of all others. Their experience of vesicatory serum, however, relates chiefly to opium smoking, which is the mildest type of opium addiction and consequently the most responsive to any form of treatment. Of our opium smokers 82 per cent responded to the Modinos' withdrawal method to a greater or lesser extent. We treated by this method 74 smokers whose average daily consumption was 65 grains of opium and whose average period of addiction was 8 years.

Vesicatory serum seems to sensitize the addict to his drug of addiction. The smell of opium becomes unpleasant and in many cases excites nausea, vomiting, headache and giddiness, as do attempts at smoking opium. Taste is likewise altered. The mention of opium in any connection has the psychological effect of producing expressions of repugnance and irritability. This induction of sensitivity by vesicatory serum is, according to Sie and Hung, the explanation of its effectiveness as a withdrawal method.

Less responsive cases exhibited a diminution of the intoxicating and pleasurable effects of opium which appreciably damped down their craving.

There is a sharp end point of withdrawal symptoms. The relief of associated chronic arthritic and fibrositic conditions resembles that following protein shock therapy. Allergic conditions—Asthma etc. were too few for a precise conclusion as to their reaction to vesicatory serum.

The general condition is correspondingly improved with the restoration of normal sleep, the addict soon loses his shifty aspect and restless irritable attitude, with the return of appetite, he shows a gradual gain weight. Nevertheless we have the impression that the effects of the Modinos' treatment are transitory and that the relapses rate is not notably decreased.

The most successful results are in no small measure due to psychical factors—the mental co-operation and confidence of the addict. The most unpromising cases are those in which the injections provoke a lurking resentment. The latter group generally relapse.

Opium Eaters. 179.

Opium eaters are the commonest class of addict in Burma Burmans and Indians are typically opium eaters just as the Chinese are smokers.

There are two groups of eaters :—

(1) Those taking very small fixed quantities for indefinite periods.

(2) Habitual opium addicts who take ever increasing quantities.

The drug is usually taken in the form of a pill or solution but it may be boiled with tea as an infusion. Opiated tea or a decoction of poppy capsules is sometimes used.

The practice is more pernicious than opium smoking and owing to its greater expense the opium eater is potentially a morphine injector in as much as injection is the cheapest method.

179 Cases whose average daily consumption and period of addiction was 65 grains and 8½ years respectively were submitted to the Modinos Method. Of these 72 per cent reacted favourably and in similar manner to the 82 per cent smokers mentioned above.

Eaters and Smokers. 92.

Addicts who combined eating with smoking chiefly Burmans and Indians or smoking with eating—Chinese, Burmans and Indians ranked second in order of frequency.

They occupy a position in the scale of physical and moral degeneration midway between that of opium eaters and smokers. Of this class 92 were subjected to the Modinos treatment. Their average daily consumption of opium was 66 grains ; their average period of addiction 10½ years. 74 per cent responded in the favourable manner described above, *i.e.*, their response was better than the eating but worse than the smoking group.

Eaters and Injectors. 5.

This group exhibited mental, physical, and moral deterioration. Their average daily consumption was 68 grains. Their average duration of addiction 5 years. Seven cases were subjected to the Modinos method and only three or 42 per cent responded slowly and not very convincingly.

Eaters, Smokers and Injectors. 3.

This group clinically resembles the Eater Injector group. The results of addiction however are something more marked and the effects of Blister serum are less satisfactory. Two cases whose average consumption and duration was 90 grains and 18 years respectively utterly failed to respond. Only one case (the last affected) or 33⅓ per cent responded to any appreciable extent.

Experiences of Modinos' Serum Method.

Modinos himself reported " Complete cures ". His cases, however, were not apparently followed up for a period sufficient to justify such an important conclusion as complete cure. Cure implies disintoxication and rehabilitation. Disintoxication alone connotes not only successful withdrawal but also complete restoration in so far as is possible to the normal state of health. And the process of disintoxication is certainly less arduous than rehabilitation or the rebuilding of the personality. If Dr. Modinos' reports concerns only disintoxication then his claim to a certain success in the first and earliest stage of treatment is admitted.

We have already referred to the investigations of Sie and Hung. Their enthusiastic endorsement of vesiculory serum is inspired by their success in the actual withdrawal of the drug and that chiefly in the case of opium smokers which are the most vulnerable group to therapeutic attack. In this connection it is interesting to note the statement of one observer that, with the exception of the periodic craving seen in extreme cases, withdrawal symptoms do not occur in opium smokers The results of Sie and Hung with regard to the relapse rate are merely an expression of hope.

Biggaru gives his experiences of Blister Serum in 40 cases. Withdrawal symptoms, he states, were not more effectively relieved nor were relapses less frequent than they were in a series of controls treated simultaneously with blisters and the injection of mormal saline.

Hegt reports successful withdrawal by the Modinos method but not more so than by other methods. His relapse rate figures too were not very encouraging.

More recently Kwa and Tan report very favourable results with the Blister serum method.

A true estimation of the value of vesicatory serum probably lies somewhere between these extreme views.

Summary.

Although the method is based upon a discarded hypothesis we found in actual practice that Blister serum was a valuable method of denarcotization particularly in the milder types and degrees of addiction. It is dependent for its efficience upon the production of sensitization which seems to be of a temporary nature.

Its advantages are :—

(1) It is a safe procedure even in advanced cases : Local and general reaction is slight or absent.

(2) Contraindications to its use are few.

(3) Its action is prompt.

(4) The technique is easy.

(5) Cost is negligible.

(6) It exerts a beneficial portein shock effect on certain associated physical ailments.

Its chief disadvantages are :—

(1) Its frequent failure to control the withdrawal state of the more severe types of addiction.

(2) Its slight influence on the relapse rate.

(3) Owing to the fact that it is a painful procedure it frequently provokes resentment and so the addict will sometimes affirm that he is cured to escape further injections thus rendering " Favourable results " fallacious to a certain extent.

(4) A certain measure of confidence and co-operation on the part of the patient are required for the successful performance of the treatment: in fact Hegt regards the hypersensibility produced as non-specific but psychogenic.

REFERENCE.

1. Ministry of Health Department Committee on Morphine and Heroine Addiction. Report 36. P. P. 1926.

2. Public Health Report. Wash. 1929, Vol. 44, 1256-60. Act Establishing Narcotic Farms and a Narcotic Division in the Public Health Service.

3. *Tatum, A. L., Seevers, M. H. and Collins, K. H.*—Morphine addiction and its Physiclogical Interpretation based on Experimental Evidences. J. Pharm. and Exper. Therap. 1929, Vol. 36, 447-75.

4. *Halm, B.*—Ueber das Wesen und den Psychologischen Mechanismus der Suchten (Suchtigkeit), Muench, Med. Woch 1928, Vol. 75, 215—18.

5. *Staehelin, J. E.*—Ueber Entstehung and Behandlung der SuchtelSchweiz Med. Woch. 1932 Oct. 1, 893—9.

6. League of Nations. Report of Commission of Inquiry into the Control of Opium smoking in the Far East. Vol. 1 Report with Comparative Tables. Maps and Illustrations 158. P. P. XI Opium and other dangerous drugs.

7. League of Nations. Traffic in opium and other Dangerous Drugs. Conference on the Limitation of the manufacture of Narcotic Drugs covered by Article 4 (*b*) (*c*) and (*g*) of the Geneva Opium Convention, Analysis of the International Trade in Morphine, Diacetyl-Morphine and Cocaine for the years 1925-1930, Part I.

8. *Chopra, R. N,* in collaboration with *G. S. Chopra and K. S. Grewal*—Opium Habit in the Punjab, Part I. Indian J. M. Res. 1932 Vol. 20, 545—64.

9. *Adms, E, W.*—A review of some recent work on the addiction Problem. Bulletin of Hygiene 1931 VI 518.

10. *Kolb, L.*—Clinical Contribution to Drug Addiction ; The Struggle for Cure and the Conscious Reasons for Relapse. J. Nervous and Mental Dis. 1927. Vol. 66, 22—43.

11. *Dixon, W. E.*—A clinical address on Drug Addictiou, Canadian M. Ass. J. 1930 Vol. 23, 747-56.

12. *Dinguizli. B.*—Un nouveau fleau social : le theisme en Tunisie Bull. Acad. Med. 1927, Vol. 97, 423-9.

13. *Rees, J. R* —Psychological Factors in the Prevention and Treatment of Alcohol and Drug addiction, Lancet 1032, Oct. 29, 929-33.

14. *East, W. N.*—Mental Defectiveness and Alcohol and Drug addiction—Brit. J. Inebriety—1932, Vol. 29, 149—68.

15. *P. Solier & D. Morate.* Presse, Med. Nov. 29th, 1924, p. 948.

16. *Adams, E. W.*—Theories of the Mechanism of Drug addiction—Bulletin of Hygiene 193?, Vol. 7, 601—7.

17. *Modinos, P.*—La guerison des toxieomanes Bull. Acad. Med. 1929, Vol. 102, 283—5.

18. *Pellini, E. J. and Greenfield, A. D.*—Narcotic Drug Addiction I. The Foramation of Protective Substance against Morphine Arch Intern. Med. 1920, Vol. 26, 279—92. *Gunn, J. A* – Cellular Imminity ; Congenital and Acquired Tolerance to Non-Protein Substances, Physiol. Rev. 1923, Vol. 3, 41—74 ; *Du. Mez. A. G. and Kolb, L.*—Absence of Transferable Immunizing Substances in the Blood of Morphine and Heroin Addicts—Pub. Health Rep. Wash., 1925, Vol. 40 548—59.

19 *Modinos, P.*—Paris Med. April 13th, 1929, page 349.

20. *Chopra, R. N. and Bose, J. P.*—Opium and Albuminuria (Drug addiction Series No. 10.) Indian M. Gaz. 1931, Vol. 66, 299—302.

21. British J. Inebriety. 1931, Vol. 29, 13—19. Discussion on the Prevention and Treatment of Drug Addiction (Brown, W , Molpother, E., Critchely, M., Scott F. G. L., Glover, E., Mackenzie, N., Brasher, C, W. and Wilson, K.)

22. *Neligan, A. R* —The Opium Question with special reference to Persia.

23. *Nakajima, S. and Kubota, S.*—On the Active Principal of Opium when smoked. Nat. M. J. Chins, 1927. Vol. 13, 194—8.

24. *Moutier, F.*—La dyspepsie des fumeurs d'opium. Arch. des Malad, de.l' Appareil Digestiff, 1927, Vol. 17, 794—801.

25. *Sie, K. T. and Hung, T. K.*—Opiumontwenningskuren, met Blaar Blaarserum Gerresk, Tijdsche. Vol Nederl—Indie 1931, Vol. 71. 138—51.

26. *Chopra, R. N. and Grewal, K. S.*—Opium Habit in India, An Analysis of 100 cases amongst the Sikh Population of Calcutta. Ind. Jour. Med. Res., 1927, 57—65.

27. *Modinos, P.*—La guerison des toxicomanes Bull. Acad. Med. 1920, Vol. 102, 288—5.

28. *Biggam, A. G., Arafa, M. A., Ragab, A. F.*—Heroin Addiction in Egypt and its Treatment during the withdrawal Period. Lancet 1932, Apl. 30, 922—7.

29. *Hegt, F. J. H. N.* Ontwenningskuur bij obiumschuivers Volgens de Methode van Modinos, Geneesk, Tijdschr. v. Nederl-Indie 1931, Vol. 71, 898—903

30. *Kwa Tjoen Sioe and Tan Kim Hong* opiumontwenningskuren met Balaarserum Geneesk. Tijdschar V, Nederl—Indie, 1931, Vol. 71. 138—51.

Inguinal Hernia and Hernioplasty

By Dr. N. Mangesh Rao, M.B., C.M., F.R.C.S. (E.),

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Historical :—Hernia is as old as the human race. It was known to Egyptians as early as 3000 B.C. and was treated, by bandaging. The first operation was done by Celsus in the first century A.D., of ligating and excising the sac. The popular name of " rupture " for this disease was apparently due to the view expressed by Galen that hernia was due to a rupture of peritoneum.

A greater advance in the knowledge of this condition took place in the 18th century through the work of Littre, Richter, Campor and Gimbernaut and in the 19th century Cooper and Scarpa added to the knowledge of the surgical anatomy of the part.

Czerny introduced the method of high ligation of sac through the external abdominal ring with closure of the pillars snugly round the cord by sutures. This became the standard operation till the twentieth century. But recurrence was 30 per cent or more after this operation. Opening of external oblique for high ligation was introduced by Lucas Championiere in 1883. Bassini introduced his method of hernioplasty in 1883-84. This has now become the standard method of treatment. But recurrences have induced surgeons to modify the methods in various ways. In 1887 Halstead placed the cord subcutaneously with plastic suturing of the muscles of the canal behind the cord. It was given up but has been reintroduced with modifications for repair of direct hernia. In 1895 E. W. Andrews introduced a modification of Bassini operation called

the " Imbrication or lap-method ". Coley and Ferguson introduced the method of suturing the conjoined tendon to inguinal ligament in front of the cord. Halstead performed a similar operation in which he reduced the size of the cord.

Mac Arthur in 1901 suggested the use of live fascial sutures, using strips of fascia from the aponeurosis of external oblique. Gallie and LeMesurier introduced the method of using strips of fascia lata for the repair of the inguinal canal in 1921. This method has become most useful in the repair of large and long standing oblique hernia, direct and recurrent herniæ and has displaced the filigree operation.

1. **The truss** :—In 1306 Gordon introduced the iron truss and 1628 Le Quin introduced the steel truss. The English cressbody truss was introduced in 1806. Since then several modifications and improvements have been introduced.

Three chief types of herniæ are noticed in connection with inguinal canal :—the oblique, the direct and interstitial herniæ.

The oblique inguinal hernia :—In this the sac emerges through the internal abdominal ring lateral to the deep epigastric artery and lies in front of the cord and is covered by all the coverings of the cord. After traversing the canal it emerges through the external ring and descends downwards into the scrotum. According to the length and position of the sac in relation to the inguinal canal and neck of scrotum three clinical degrees can be recognised.

Bubonocele or incomplete hernia in which the hernia is entirely within the canal. The complete type in which the hernia just emerges through the external ring. The Inguino-scrotal type in which the hernia has passed down into the scrotum.

2. **Direct hernia** :—In this the sac, always an acquired one emerges through the inner part of the inguinal canal medial to

the deep epigastric vessels. It stretches out the transversalis fascia and conjoined tendon in front of it. In about 10 per cent the sac may emerge through gaps in the transversalis fascia. The sac always lies behind the cord. After emerging through the external ring, it seldom or less frequently becomes scrotal, but more often rises towards the pubic region.

3. **Interstitial hernia** :—In certain cases of oblique inguinal herniæ there is an irregularity of the sac due to the development of a lateral diverticulum or a complete congenital displacement of the entire sac into the planes of the abdominal wall. They are usually seen in arrested descent of testis or its maldevelopment. These herniæ are rare.

4. **Sliding hernia** :—These may be sacless sometimes.

Frequency :—In males 95 per cent of all herniæ are of inguinal type and of these 70 to 80 per cent are oblique and 20 to 30 per cent are of direct type. In women 45 to 55 per cent of herniae are inguinal (Watson), 98 per cent of which are oblique and only 2 per cent of direct type. The sex ratio for the oblique type is 10 males to 1 female. Keith says that 4·4 per cent of male children have oblique herniæ in the first year of life and two-thirds of these are cured spontaneously or by a simple truss (Bull). About 1 to 2 per cent of male adults in the third decade (20 to 30) suffer from oblique herniæ.

It is more common on the right side than on the left in the ratio of 3 : 2. This is probably due to later descent of testis and later closure of processus vaginalis in the male and the canal of Nuck in the female. In the male oblique inguinal hernia shows a tendency to become bilateral in 25 per cent of sufferers and in women about 20 per cent.

Etiological factors :—1. *The persistence of a patent funicular* process as a whole or in the proximal part in males and the canal of Nuck in women provides a potential hernial sac. Keith found a patent funicular process in 30 per cent of infants

up to four months after birth and in 12 per cent of adults. Russell found it in 10 per cent of adults. In women the canal of Nuck was found open in 10 per cent (Nobbe). Sachs found a patent funicular process in 29 per cent of male adults and a patent canal of Nuck in 25 per cent of adult women. It is generally accepted now that 90 per cent of oblique herniæ have congenital defect in the obliteration of the funicular process. In most cases developing in young adult life there is usually a tiny sac which in course of time enlarges at the expense of abdominal peritoneum.

Though the patency of this process is about equal in both the sexes, the ratio of incidence of hernia is 10 males to 1 female. Hence other factors must influence this condition. These are :—(1) The processus-vaginalis is wider and longer in males than in females. (2) Both the rings and inguinal canal are much wider in men owing to the descent of testis. (3) The drag on the patent funicular process is in opposite directions in the two sexes. In the male the increase in size, weight, and mobility of the dependent testis exerts a pull on the patent process in an inward and forward direction. In women this process is adherent to the round ligament which is subjected to a backward pull towards the pelvis by the uterus. (Hitzrot). The incidence of oblique inguinal hernia in the two sexes is more even before puberty.

2. *Inadequacy of inguinal sphincter surrounding the cord.*—According to Keith, the conjoined tendon acts like a shutter coming down against the fixed inguinal ligament and closes the canal snugly round the cord during abdominal strain. Hence a weakness in this tendon either congenital or acquired permits a weak point for the development of a hernia. Relaxation of the tendon occurs when the thigh is slightly flexed or in stooping postures. Under these conditions repeated sudden increased intra-abdominal tension is liable to force out an enlarging conelike process of peritoneum into the canal. The

presence of any small cone of peritoneum at the proximal end of canal (cangenital sac) favours formation of hernia. Conjoined tendon may be weakened by starvation, wasting diseases, fatty degeneration or atrophied by a previous operation. Damage to its nerve supply as after a MacBurney or Davis' incision may also weaken the tendon. A greater development of cremaster muscle in the male is at the expense of conjoint tendon.

3. Presence of subserous lipomata in the inguinal canal is liable to drag down a cone like process of peritoneum. These are often seen in stout individuals. Weakness of the shutter-action is also caused by growth of these lipomata.

4. Increased intra-abdominal pressure would force its contents through gaps in the abdominal wall or points of weakness. A pre-existing sac or weakness of inguinal canal or both would at once favour the formation of a hernia. This increased intra-abdominal pressure may be brought about by chronic cough, straining in chronic constipation and urinary obstruction, by intra-abdominal tumours, or by increase of intra-abdominal fat, etc.

5. *Heredity*.—According to Eccles 25 per cent of cases give a family history of hernia. This probably consists of an inherited weakness of the conjoined tendon and an incomplete obliteration of the funicular process.

6. *Occupations* subjecting one to severe abdominal strains in stooping posture as in stokers, coal-heavers, porters, etc., are liable to cause hernia. In the stooping position the conjoined tendon gets slightly relaxed and hence cannot completely close the canal and if the intra-abdominal pressure is increased repeatedly, a gradually increasing peritoneal cone is liable to be forced through the internal ring.

7. *Age*.—In the first two decades of life hernia is usually of the indirect type and due to presence of a patent congenital sac. In the third decade new hernia formation is not common.

But from fourth decade onwards the incidence increases and is 50 per cent more common than in the first decades. This is partly due to weakening of the conjoined tendon from age, increase of fat, subserous lipomata and partly due to causes, that induce repeated increased intra-abdominal pressure such as urethral strictures, enlarged prostate, chonic bronchitis, chronic constipation, etc.

Direct Hernia

In this the sac presents through the inner part of inguinal canal and neck of sac lies medial to the deep epigastric vessels. It stretches the transversalis fascia and conjoined tendon or more often slips under a poorly formed conjoined tendon and finally projects through the external ring but shows little tendency to descend into the scrotum. In about 10 per cent of cases the hernia may push through gaps in the transversalis fascia. 25 to 30 per cent of herniæ belong to this type and 98 per cent of all direct herniæ occur in males. They occur from fourth decade onwards in life. 50 per cent of recurrent herniæ belong to this type and are usually due to atrophy of conjoined tendon. 60 per cent of direct herniæ are liable to be bilateral sooner or later. They are prone to recurrence in 30 to 50 per cent of cases after operation.

Anatomy:—*Hesselbach's* triangle is bounded laterally by deep epigastric vessels, medially by the lateral edge of rectus abdominis for a distance of 3 to 5 centimeters in people with poorly formed conjoined tendon and below by the inguinal ligament. Where the conjoined tendon is well formed, its arching fibres cover the inner two-thirds of the space. But where it is poorly-formed, only the transversalis fascia and extra-peritoneal fat intervene between the peritoneum and the aponeurosis of external oblique. The obliterated hypogastric artery crosses this space and may be found stertched over the sac. More often a direct hernia projects at the lower inner angle of this space, near the margin of the rectus. Where the

conjoined tendon is atrophied by the existence of a large hernia or destroyed by a previous operation, the gap near the outer edge of rectus may be as wide as 7 c.ms., the lower fibres of internal oblique and transversalis being inserted into the rectal sheath 7 c. ms. above the pubic crest. The floor of this triangular space is formed by transversalis fascia which is well formed in the upper and medial part but thins out below. In the upper part it is reinforced by arching fibres passing from medial to lateral side. The lower central part of the floor is weakest and it is here that hernia first begins to bulge out.

1. **Causes** :—A congenital or acquired deficiency of conjoined tendon and the presence of a large external ring favour the production of a direct hernia. A well formed cremasteric muscle is always at the expense of the conjoined tendon, and the external ring has to be wider to accommodate for a thicker cord. The conjoined tendon is also damaged by previous operation and more than 50 per cent of recurrent herniæ are of direct type owing to this damage.

2. Increase of both intra-abdominal and sub-peritoneal fat favours the formation of a direct hernia. According to Cloquet fatty masses project through gaps in transversalis fascia caused by blood vessels penetrating through it. The cord also is liable to be loaded with fat thereby widening the external ring.

This hernia first appears as a bulge in the inguinal triangle, stretches the transversalis fascia, then usually slips below the conjoined tendon. It next meets the aponeurosis of external oblique and projects upwards over the internal oblique. But if the external ring is large, it projects through it and ascends upwards showing little tendency to descend into the scrotum. The sac is globular or dome shaped and situated on the inner side of inguinal canal just above the pubic bone. Often the bladder is adherent to its inner wall and sometimes the colon on the outer side in herniæ of left side. In about 25 per cent

of these cases there is also a small indirect sac giving rise to a "pantaloon or saddleback" sac made of two components, a small one lateral to the deep epigastric vessels and the larger sac medial to them. In a large sac the obliterated hypogastric artery is found stretched across the sac. In a few cases a large indirect sac may be accompanied by a small direct sac. In about 10 per cent of cases narrow necked sacs may project through gaps in the transversalis fascia. It is this type of direct sac that is liable to slip through the external ring early and is liable to incarceration and strangulation. It resembles very much an indirect hernia. Direct herniæ rarely grow to large size and rarely get strangulated. Only about 2·5 per cent of strangulated herniæ belong to this type. Patients with direct hernia often complain of indigestion and constipation but these are not relieved by operation The bulge of a direct hernia subsides suddenly on recumbency and appears as suddenly on standing. The bulge appears on straining even in the recumbent posture, but this does not occur in an indirect hernia till the internal ring has become wide. The expansile impulse is more evident and communicated to the entire sac at once in a direct hernia. If the little finger is introduced well into the canal and with pulp directed to the floor, one may appreciate the laxness of the floor and deficiency of conjoined tendon in direct herniæ. On coughing the impulse is felt by the pulp in the floor in direct type and by the tip of the finger in the indirect type.

Interstitial Herniæ

These occur with retained testis or undescended testis. There is an absence of cremaster and the abdominal rings may be superimposed. The external abdominal ring may be partially obliterated. They are very liable to strangulation and the lateral sacs may be missed during a radical operation. This type should be suspected when the testis is absent from scrotum and a bulge is noticed lateral to or above the internal

ring. According to frequency the following varieties may occur :—

(1) A patent processus vaginalis is present in the scrotum with lateral diverticulum lying between

(*a*) the peritoneum and transversalis fascia (Pro-peritoneal.)

(*b*) sac lying between internal and external oblique muscles. Sac between transversalis and internal oblique muscles is rare. This type is called interparietal.

(*c*) Sac lying between transversalis fascia and muscles.

(*d*) Sac lying between the peritoneum and ilaic fascia-retro-peritoneal.

2. Processus vaginalis absent from the scrotum and sac is found between external oblique and the skin (pre-parietal), or between the peritoneum and iliac fascia. Often these lateral diverticula may be missed unless looked for. However these types are rare.

Sliding or Sacless Herniæ

The caecum on the right and the sigmoid on the left slide down preceded by the iliac peritoneum. They commonly occur as direct and less commonly as indirect herniæ. At first a small sac may be persent but as the hernia enlarges the peritoneum is displaced upwards and bowel slides down behind it. Finally a small sac is found highup on the anterior aspect, the bowel forming the posterior and inferior wall. These most often occur in people with visceroptosis. Some are due to congenital deficiency in the endoabdominal fascia which fixes the different organs to the posterior abdominal wall. In some, elongation of their mesentery may be a cause. These herniæ are liable to become irreducible and may get incarcerated. They are a difficult problem for operative treatment. They are rare.

Treatment of Oblique Hernia :—In infants and children under 18 months, 65 per cent of herniæ are cured spontaneously or by the use of a simple truss. Hence any exciting cause as phymosis, anal stenosis, etc., should be dealt with and a truss tried. After the age of 10 years, hernia cannot be cured by trusses and requires operative treatment for cure. Herniæ occurring with undescended testis should always be treated for both conditions by operation as early as possible. After the age of 60, operative treatment except for strangulation or obstruction is inadvisable. These should be prescribed trusses. Long standing large inguino-scrotal herniæ are best left alone. These have such large openings that strangulation is rare. They are generally irreducible from adhesions and the abdominal cavity is unable to accommodate all the hernial contents and respiratory difficulty and distension are likly to follow if operation is done.

After puberty an oblique inguinal hernia is best treated by operation. It is always liable to strangulation and efficient surgical aid may not be available on the spot. This liability is greater in manual workers. If left alone, it is certain to increase in size and the conjoined tendon undergoes atrophy from pressure and then an elaborate hernioplasty would be required. "A stitch in time saves nine" is a true saying in this connection.

The following important principles should be observed in the operative treatment :

(1) A free exposure of inguinal canal by slitting the external oblique and the pubic attachment of conjoined tendon and inguinal ligament should be well defined.

(2) The sac should be freed right up to its neck and the peritoneum all round it and especially on the medial aspect of the canal should be tightened by twisting the sac before its ligature and excision.

(3) Where the conjoined tendon is poorly formed or atrophied an adequate plastic repair should be done.

(4) Avoid leaving any weak points in the floor of the triangle, especially at its medial end.

(5) So that the union of fascia with muscle may be firm, it is essential to free them well of all areolar tissue by gauze dissection.

(6) In such union no tension should occur and hence fascial darning after the method of Gallie should be resorted to if the conjoined tendon cannot be brought down to inguinal ligament without tension.

(7) Since at least 21 days would be required for firm union to take place, catgut should be chromicized or efficiently tanned and size I should be used. Linen thread or silk may be used as knotts are fine, but "shooting" of sutures is liable to take place. Kangaroo tendon is too thick for the purpose and if used should be of fine quality. Living fascia is best and should be autoplastic, the ideal one is fascia lata. I must mention here that a doubt has been cast about the union of muscle fibres with elastic tissue, on the basis of animal experiments. But other Surgeons affirm that firm fibrous union can take place, if muscles and fasciæ are completely denuded of all areolar tissue. But in this recurrences, though small, 4—5 per cent do occur. Gallie reports excellent results without recurrence by the use of fascia lata suture. These living fasciæ are not absorbed and do not stretch and remain as a permanent support for the weakened canal.

In young adults and children where the sac is of congenital nature and hernia is a small one and conjoined tendon is

adequate it is enough if the sac is removed after high ligation and tightening of peritoneum. If conjoined tendon is slightly week, then a suture at the medial end between the conjoined tendon and insertion of inguinal ligament is enough. The transversalis fascia has to be tightened in some by pleating, if found lax. The internal ring should be closed by suture snugly round the cord, if found to be large. Similarly the external ring should be snugly closed round the cord.

In complete oblique herniæ of some standing Andrews' modification of Bassini should be done. If the cord is found to be large the cremaster muscle should be excised in addition.

The Ferguson-Coley Operation:—In this the conjoined tendon is sutured to the inguinal ligament in front of the cord. This operation is indicated in herniæ with undescended testis of children, in complete herniæ of children and in oblique herniæ of women.

Downes' modification of Andrews' operation:—This operation is of use in large oblique herniae and some of the direct herniæ. It is also indicated for the pantaloon type of sac. In this the cremaster is excised and size of the cord is reduced. The fibrous part of the transversalis fascia is brought down and sutured to inguinal ligament and the internal ring is also snugly closed round the cord. The conjoined tendon is sutured to inguinal ligament. Then over-lapping of the two leaves of external oblique is done in front of the cord on the lateral side and behind the cord on the medial side. For recurrent hernia and large direct hernia Gallie's method should be employed. In this, strips of fascia lata are used in the form of basket work between the inguinal ligament and conjoined tendon and the rest of operation is as in Andrews' method.

I might stress here the point that the operation has to vary according to conditions found in the canal after it has been adequately exposed. There is no set method that could cure

hernia. It is necessary for one to note if any exciting causes are present in such cases as phimosis, stricture, etc., and remove these causes before the operation is undertaken. The whole aim should be to reduce the chance of recurrence for the sake of the patient as well as the Surgeon's reputation.

Recurrence:—Andrews says that Bassini's operation gives 25 per cent recurrences, 2·5 per cent only for fascial repairs Gallie says that with his method, he has had no recurrence. Max Page—his recurrences for 5 years were 11·5 per cent in the Metropolitan Police force.

Indications for prevention of recurrence:

(1) Early and adequate operation before the conjoined tendon gets atrophied.

(2) Use of fascial transplants as sutures for large herniæ with poor conjoined tendon.

(3) Avoid tension when suturing the conjoined tendon to inguinal ligament.

(4) Suture material used should not be absorbed in less than three weeks.

(5) Absolute asepsis and dryness of wound, all bleeding points being ligatured.

(6) Sufficiently prolonged convalescence—3 weeks in bed, 3 weeks on a couch. Return to work only after three months. Lifting weights and straining to be avoided for six months.

REFERENCE.

1. *Nelson Loose Leaf Surgery.*
2. *A system of Surgery edited by C. C. Choyce. Vol. 2.*
3. *Inguinal hernia, W. W. MacGregor—Sur. Gyn. & Obst., Vol. XLIX, 1929.*
4. *Direct hernia E. Andrews and A. D. Bessell,* "
5. *C. Max Page. B. N. J. 17th Nov. 1934.*

Reticulocytes.

By D. Govinda Reddy, M.D.,

Department of Pathology, Medical College, Madras.

Though reticulated red blood corpuscles were noticed as early as 1881 by Ehrlich, it is only very recently that their clinical importance has been recognised by pathologist and physician. Haemotologists are of unanimous opinion that the reticulocyte is an immature erythrocyte, but they differ regarding the nature of the reticulum. Originally the reticulum was considered to be nuclear remnants, but consensus of opinion at present is, that it is of the nature of a protoplasmic substance. The nucelated red blood corpuscles and megalocytes do not show this reticulum by whatever method they are stained. It would appear that when living erythrocytes, that take basophilic stains come in contact with dyes like cresyl blue, their cytoplasm gets precipitated as reticulum Some authors are of opinion that polychromatic cells and reticulated cells are fundamentally the same, the only difference being the method of their demonstration. The vital stain used effects a condensation of the diffusely distributed basic material into more or less dense network, and the reticulum is really an artefact, and is not present in an unstained slide. Two types of reticulum have been described: one a filamentous form and the second a granular form. The filamentous forms are considered to be more mature and the prognosis is said to be better when they appear in large numbers.

Staining methods.

To demonstrate reticulum *vital staining* should be done. The dye that gives very satisfactory results is *brilliant cresyl blue* (Grubler's). There are several methods described but I have found the two following methods very successful.

1. Alcoholic solution of brilliant cresyl blue is prepared and kept in stock. The disadvantage is that with time the alcohol evaporates and the stain gets precipitated. To obviate this the solution is prepared at frequent intervals in small quantities and used up.

A drop of this stain is placed at one end of a slide which has been thoroughly cleaned with alcohol. With another slide, the stain is spread evenly over the slide. After the alcohol has completely evaporated, a drop of the blood is placed at one end and with another slide a thin blood film is made. When dry the film is examined under oil immersion lens of a microscope. This method is very convenient and gives good results if the stain is fresh and the slides are thoroughly cleaned.

2. The following two solutions are kept in stock and renewed every week :—

(*A*) 1 per cent brilliant cresyl blue in 0·85 per cent sodium chloride solution.

(*B*) 1 per cent neutral potassium oxalate in 0·85 per cent sodium chloride solution.

At the time of use, filter through a wet filter paper, 5 drops of solution (*A*) and 25 drops of solution (*B*) and mix. Preferably a conical glass is used. Prick the finger and allow two to three drops of blood to fall into the stain and mix gently. After five minutes, centrifuge for a couple of minutes, draw off the supernatant fluid with a pipette and prepare thin-smears from the deposit. The smears have to be quickly dried as otherwise there will be a tendency for crenation. These slides can be counterstained with Leishman's stain in the usual way when the reticulum is better seen as blue dots or strands, against the red buff back ground of the erythrocytes. Beginners often find this very helpful in enumerating the reticulocytes. An alternate and perhaps better method is to examine the erythrocytes without drying. For this a small drop of the sediment is

placed over the centre of a clean slide and is gently spread under a cover slip. The rim of the latter is greased to prevent drying. The granules of the leucocytes take deep blue colour and stand out prominently. The erythrocytes stain light blue with a tinge of yellow. The reticulum takes a deep blue stain and is seen either as a net work of fine granules or filaments (as a coarse skein). Being immature cells many of the reticulocytes are slightly larger than the normal erythrocytes and take a somewhat deeper stain.

I have found the latter method gives excellent results, specially the wet film procedure. Moreover the fallacy of precipitated stain particles and dust simulating reticulum is thus completely obviated.

Enumeration of Reticulocytes.

Using an ordinary ocular, it is difficult to count correctly the number of erythrocytes in a field, as the field is too big. To obviate this difficulty, hitherto, the field of view was divided by cementing four short pieces of hair across the diaphragm of the ocular in such a manner as to form a small rectangle in the centre. But now special oculars are available in which there is provision for variable rectangular diaphragm. With such an arrangement, it is very convenient to bring into field of vision about 25 erythrocytes on an average, and count correctly. In my opinion the former method is very inconvenient and the special ocular is prohibitively costly for the general practitioner. I have found that an ordinary ocular can be used by introducing a circular metal or cardboard disc with a central slit of $\frac{1}{5}$ inch square into the upper portion of the ocular after unscrewing the top lens. At least a thousand corpuscles have to be counted and the number of reticulocytes noted.

Reticulocytes in Normal blood.

There is no uniformity as to the normal percentage of reticulocytes as recorded by various haematologists. Anything from 0·1 per cent to 1 per cent is considered to be normal in

adults. I find that it is always less than 0·5 per cent and never above. In infants the percentage is higher and may range up to 5 per cent. Phsiological variations due to seasonal changes and pregnancy have been reported.

Reticulocyte variations in disease.

Increased reticulocytes (Reticulocytosis).

1. Haemolytic jaundice—The reticulocytosis is out of proportion to the severity of the anaemia—nearly 10 to 20 per cent.
2. In purpuras and polycythemia vera.
3. In anaemias under treatment, especially pernicious anaemia after introduction of liver therapy. In idiopathic hypochromic anaemia the reticulocyte crisis occurs with iron but not with liver. In sprue a rise occurs both after iron and liver treatment. Perhaps in sprue there is a dual deficiency (of both iron and the intrinsic and extrinsic factors)
4. In congenital haemolytic anaemia of children.

Decreased reticulocytes (Reticulocytopenia)

1. In aplastic anaemia
2. In any anaemia where there is no blood regeneration.
3. During the period of regression in pernicouis anaemia.

Significance of reticulocyte count variations.

The number of reticulocytes circulating in the blood is a reliable index of blood regeneration. The increase in reticulocytes is accompanied and followed by a rise in the erythrocyte count and haemoglobin content. In a case of pernicious anaemia, if there is no reticulocytosis after exhibiting liver therapy, it indicates, that either the liver preparation used

is not potent or the bone marrow is aplastic. Also one has to bear in mind that reticulocyte response may be inhibited with age, infection and damage to vital organs such as liver, blood vessels and central nervous system. In pernicious anaemia during periods of regression, there is almost complete absence of reticulocytes and when remission sets in, the reticulocytes begin to increase. In this disease the reticulocyte percentage can be utilised as a true index of bone-marrow activity, and also as a comparative factor in testing the activity of the various liver preparations. In bone-marrow aplasia the reticulocyte count continues to be very low even after treatment and it foreshadows a fatal termination.

After the exhibition of liver the reticulocytes begin to rise from second to third day and by the end of second week, they reach a maximum of about 10 to 15 per cent and then they begin to fall very gradually. So though the percentage is an index of progress in the beginning, later on this data cannot be used as a criterion of an index of cure.

A Case of Atresia of the Cervix.

By R. Balachandran Thampi.

Name.—Naramma. *Age.*—*18.*

Admitted on the 13th July 1935 under the second obstetrician.

Complaint.—A painful tumour in the lower abdomen.

The pain is aggravated periodically at fixed intervals and then gradually diminishes.

No periods.

Duration.—2 years.

History.—Married for the last five years.

No periods.

Had never been pregnant.

No history of any previous illness.

Clinical examination.—General condition, Fair; circulatory, respiratory and alimentary systems, Normal.

Palpation of the abdomen revealed an enlargement of the uterus four fingers above the symphisis pubis; a small rounded mass was felt in the left iliac fossa, and another elongated mass in the same region. No rigidity of the abdominal wall. The tumour was slightly tender.

P. V.—External genitals were normal; vagina shorter than normal; no cervix was felt; there was a complete imperforate vault for the vagina. On further examination the uterus was found to be enlarged to midway between the symphysis pubis and the umbilicus; an elongated tumour was felt on the left side of the uterus. Right side was normal.

Examination with the speculum confirmed the P. V. findings. The vault of the vagina presented no central canal. The mucous membrane was healthy; there was no swelling visible at the vaginal vault as one would naturally expect in hæmatometra.

Diagnosis.—From the typical history and clinical findings a diagnosis of cryptomenorrhœa due to congenital cervical atresia was made.

Treatment adopted.—Abdomen opened under spinal anæsthesia, by a sub-umbilical median incision. The uterus was found to be distended up to the size of an orange. The left tube was distended, elongated and doubled upon itself in its distal half. It was adherent to the ovary. Left Salpingectomy done.

The right tube was somewhat thickened and a thick viscid chocolate coloured fluid could be seen trickling through the abdominal ostium. The contents of the left tube was also of the same nature.

There were thin adhesions, and vesicular formation all round in the pelvis due to the very mild chronic peritonitis set up by the escaping menstrual fluid. As the contents of the uterus were very viscid, aspiration by a needle was impossible. The pelvis was mopped clean and abdomen closed in layers.

Next, an opening was made in the vaginal vault—Colpotomy. Again viscid chocolate coloured fluid escaped from the uterus. The cavity was plugged with gauze.

The two pathological conditions present were, Hæmatometra and a left side Hæmatosalpinx.

The recovery after operation was uneventful and the wound healed by first intention.

The patient was re-examined on the 29th July 1935, thirteen days after the operation:—

P. V. showed that the new opening made in the Vaginal vault was considerably narrowed but allowed the uterine sound to go in easily. Uterus and Cervix contracted down. Cervix very small.

It is hoped that menstruation will occur normally and that she may pass through a normal labour with this artificial opening. She was advised to attend the ante-natal clinique and to come to the hospital in case she becomes pregnant.

A brief mention of the embryology of the uterus may be made here. The uterus is developed from the fusion of the pelvic portions of the Mullerian ducts. These Mullerian ducts develop in the six week old embryo and each one commences as a groove like invagination of the coelomic epithelium on the dorsi-lateral aspect of the Wolfian ridge near its cranial end. The blind end of the developing duct grows tailwards as a solid rod of cells which acquires a lumen as it lengthens. Atresia of the cervix may be looked upon as the result of failure in this process of canalization of the Mullerian cords. The cause is unknown except that it is considered as a congenital error in development. Each Mullerian duct consists of an upper vertical, an intermediate horizontal, and a lower vertical portion. The lower vertical parts of the two ducts fuse with one another to form the utero-vaginal canal, and as the uterine section enlarges it takes in the horizontal parts to form the fundus and most of the body of the adult uterus.

I wish to express my gratitude to the second obstetrician for his permission to report this case.

Some Remarks on Coronary Thrombosis with reference to a case.

(From Dr. M. R. Guruswami Mudaliar's Wards)

By N. Ramanathan, IV Year.

Name.—Abraham Naidu. *Age.*—58. *Admitted on*—4-7-1935.
Caste.—Christian. *Complaint.*—Pain in the precordium.
Occupation.—Ryot.
Residence.—Keelachari. *Duration.*—Since 3-7-1935.

History of present illness.—The pain started at about 4 o'clock in the evening on 3rd July 1935 and was somewhat bearable to start with. At the time when the pain started he was seated in his house At about 5-30 p.m. the pain became very severe and was located to the upper sternal region and did not radiate in any direction. So he sent for a local doctor who gave him an injection of morphia and amyl nitrite for inhalation. Some time after the injection he vomited twice and this relieved him of the pain to some extent. But since the pain was persistent and not relieved by amyl nitrite he started for the hospital and was admitted at about 2 a.m. on 4th July 1935. The patient was conscious throughout. On 3rd July 1935 he had his breakfast as usual at about 10 a m. and at about 3 p.m. he took a cup of coffee. The pain came on at about 4 p.m. At about 8 p.m, he took a cup of coffee and some soda water which he vomited.

History of previous illness.—The patient has been uniformly healthy throughout. He denies any history of exposure to venereal diseases.

Habits.—He is addicted to alcohol and tobacco.

Diet.—Non-vegetarian.

Family History.—Nothing very particular excepting that his eldest brother died of a similar complaint within a few hours.

Condition on Admission.—Patient is fairly well nourished, presents no visible signs of anaemia, teeth dirty and irregular, tartar and pyorrhoea alviolaris present, foetor oris present.

Pupils.—Not dilated, active to light.

Circulatory system.—Apex beat not visible. Palpable in the 4th left intercostal space in the nipple line. Heart Boundaries—Upper border in the upper border of third left rib, right border in the right lateral border of the sternum and the left border in the left nipple line in the 4th intercostal space. Heart sounds first sound was very feeble in all the areas. The pulse was 74 per minute, regular, volume was poor and the tension high.

Other systems.—Nil abnormal.

Investigations :—

1. *Blood pressure.*

4-7-1935.	2 a.m.	172 and 85 mm. of Hg.
	9-45 a.m.	158 and 86 ,,
	12-20 p.m.	154 and 84 ,,

2. *Urine.*

5-7-1935. Reaction acid, Sp. Gr. 1032. Sugar 8 per cent, acetone nil, albumin nil, deposits nil.

3. *Leucocyte count.*

5-7-1935. 15,625 per c.m.m.

Differential diagnosis.—Coronary thrombosis should be differentiated from

1. *Angina pectoris.*—The distinguishing features are that in this condition, the pain comes on suddenly after exertion, excitement or anger. It generally comes on during the day time. The pain is very severe and excruciating and the patient feels as if he has been caught in a vice. There is a sense of impending dissolution or pause in the operations of nature. There is usually radiation of pain along the left shoulder into the arm and the pain is referred to the tip of the little finger. There may be pain in the wrist and this is sometimes the only

pain complained of by the patient in angina and this is known as Curschmann's sign. In angina pectoris there is not the extreme pallor of coronary thrombosis. The blood pressure rises and the attack lasts for only a few minutes and is relieved by amyl nitrite. There are two varieties of angina pectoris, *viz.*, angina of effort and angina of spasm. Both are relieved by amyl nitrite. In angina of effort the prognosis is much better than in angina of spasm, provided the effort which brings on the angina is not minimal.

But in coronary thrombosis the pain also comes on suddenly usually when the patient is at rest, though there is always a preceding dyspeptic trouble such as a distended colon. The pain usually comes on in the morning. The pain is referred to the same area of the chest but has not the shooting character of the pain in angina. The patient is restless. There is the ashen pallor about the face. There may be a rise of blood pressure during the attack but it progressively falls. The pain lasts from a few minutes or hours to a few days, and is not relieved by amyl nitrite which on the other hand may aggravate the pain due to a further fall in the blood pressure which it causes.

2. *Neuro circulatory asthenia.*—This occurs commonly on a neurotic and less often on a toxic basis. The pain is less severe and is exactly over the precordium while both in coronary thrombosis and in angina pectoris it is retrosternal in character. The condition is common in women and often comes on when the patient is at rest or at night. This may come on in any age and is not associated with cardiac or vascular disease. The attacks last usually for an hour or two.

3. *Anaemia.*—When anaemia is very marked we may get precordial pain of anginal severity which may be brought on by exertion and is due to the impoverishment of the blood supplied to the heart.

4. *Thyrotoxicosis.*—In this the pain is brought about by a myocardial over activity along with a certain amount of degeneration of the myocardium.

5. *Other causes of pain referred to the precordium* —

(*a*) Ordinary cardiac failure accompanied by pain as in congestive heart failure of mitral stenosis.

(*b*) Rupture of a saccular aneurysm of the thoracic aorta. This is always immediately fatal.

(*c*) Dissecting aneurysm slowly rupturing into the precordium. Recently two cases have been reported where a diagnosis of coronary thrombosis was made and on post-mortem they were found to be dissecting aneurysm of the thoracic aorta ruptured into the precordium.

(*d*) Acute abdominal conditions such as perforated gastric or duodenal ulcer and acute affections of the gall bladder.

When the pain in coronary occlusion is referred to the abdomen there is the difficulty in diagnosing it from acute abdominal conditions and in such cases the previous history and physical examination of the heart and the abdomen are helpful.

Diagnosis.—The points in favour of a diagnosis of coronary thrombosis in this case are :—

1. The sudden onset of pain while the patient was at rest.
2. The severity of the pain.
3. Restlessness of the patient.
4. The pain not being relieved by amyl nitrite.
5. The duration of the pain.
6. The leucocytosis.
7. The progressive fall in the blood pressure after a short rise.

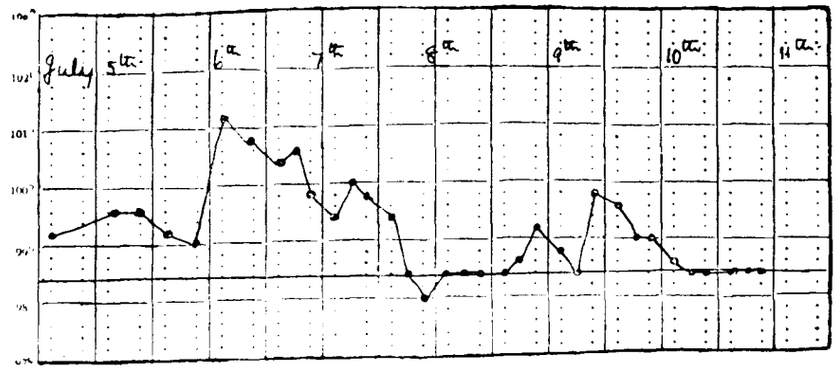
The vomiting that the patient had after the pain came on may be taken as a symptom in favour of coronary thrombosis in which it occurs usually at the onset but may come later on during the attack. It may also be that since the vomiting came on after the injection of morphine it was due to the convertion of the morphine into apomorphine in the system which produced a central emesis.

Leucocytosis in coronary thrombosis appears in six hours and the count falls down as soon as the reaction to the infarction has subsided.

The blood pressure which had risen during the onset of pain, gradually comes down and within two or three days reaches the normal

A progressive fall in the pulse pressure is a very unfavourable sign indicating the progressive weakening condition of the heart muscle.

The pulse rate in coronary thrombosis is usually high so long as the myocardium is diseased and it usually settles down to normal as the condition clears up.



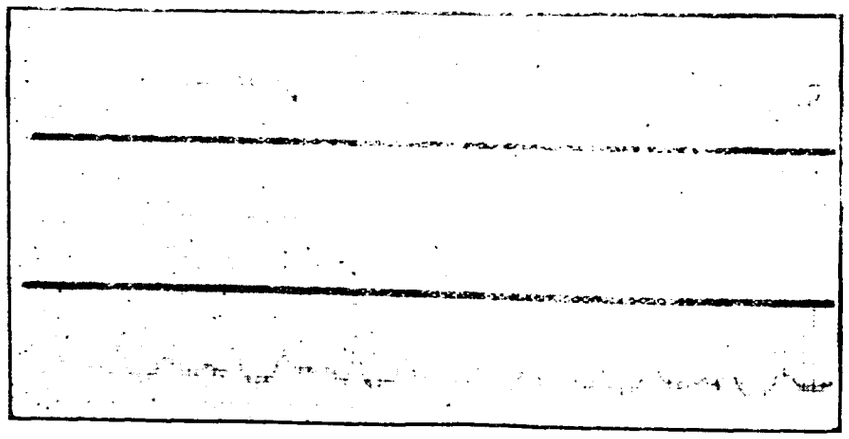
There is a rise in temperature which appears in 24 hours and lasts for a few days. This is due to the reactionary changes against the infarction of the myocardium along with which there is also a certain amount of pericarditis over the infarcted area of the myocardium. Signs of pericardial involvement such as friction sounds are absent in this case and so this points to an involvement of the posterior branch of the left coronary artery in which case the base of the precordium is affected and as such there is no likelihood of any signs of pericardial friction being made out. But the electro cardiogram taken some time later after the attack shows changes that are characteristic of an anterior branch involvement. This is a phenomenon which receives no explanation.

The coronary thrombosis may result either from an aetheroma of the coronary artery or from syphilitic endarteritis of the coronary artery which is very rare or there may be a coronary arterial sclerosis. In this latter condition the patient is seemingly healthy, no longer young, and is subject to dyspnoea on exertion, attacks of syncope, palpitation, precordial pain or angina pectoris. Such a patient may complain little when walking upon level ground but gets symptoms whenever he goes up even a slight incline or hurries in his pace.

Syphilitic endarteritis of the coronary arteries is very rare.

So in this case it is probably an atheroma of the coronary vessels.

The patient being a diabetic it is quite possible that there is arteriosclerosis of the vessels. The diabetic condition makes the prognosis graver still in that the intake of carbohydrates have to be restricted. Consequently the myocardium will have a poor supply of glycogen, but in these cases of myocardial infarction an adequate amount of nutrition to the heart muscle is necessary and this is obtained by the administration of glucose and insulin. Thus the diabetic condition is a disadvantage in this case.



Prognosis.—It depends upon the suddenness with which the infarction has been produced and upon the size of the vessel that has been involved. The prognosis is grave in youngsters for there is less chance for the collateral circulation being established while in older people the prognosis is much better there being a greater frequency of the collateral circulation being established and this is because in older people who are the subjects of arteriosclerosis there has been the slow establishment of the collateral circulation already.

Electro cardiographic changes.—Due to the want of facilities the electro cardiogram could not be taken during the attack. But it was taken on 25-8-35, *i.e.*, 52 days after the attack. It shows the Q_1 T_1 type of coronary wave.

Pardee in 1920 first called attention to the electro cardiogram of coronary occlusion. In 1925 he described its significant feature, whether sudden or gradual, as the presence in one or more leads, usually in only one, of a downward sharply peaked T wave with an upward convexity of the S—T or R—T interval.

In 1928 Parkinson and Bedford reported a remarkable series of electro cardiogram changes obtained in acute myocardial infarction. They found two types T_1 and T_8.

T_1 type :—first a change of the level and the contour of the RS—T segment in L I and L II and a depression of the S—T interval in L III. The R—T interval in L_1 and L_2 especially L_1 is elevated above the isoelectric line. The interval is likely to be convex, dome shaped or sloping downward toward the T wave. T waves may be diphasic or monophasic in the earliest stages, later on frankly inverted. L_1 and L_8 act conversely so that R—T elevation in L_1 is opposed by the S—T depression in L_8. As T becomes inverted in L_1 it remains upright in L_8 and becomes exaggerated and sharply peaked. Of particular significance in the later stages is the fact that the R—T segment arises at or only slightly above the isoelectric line and often retains the rounded contour preceding the inverted T wave. Pit falls of interpretation will be avoided if one does not interpret R S—T segments in L_1 which arise below the isoelectric line as evidence of infarction. Conditions producing left ventricular strain are prone to produce a negative T wave in L_1 with an S—T segment below the isoelectric level in the absence of myocardial infarction.

T_8 type is characterised by precisely the opposite changes as between L_1 against L_2 and L_8.

The feature of these patterns distinguishing them from all other electro cardiogram changes is the behaviour of the R S—T segment in the first ten days after acute coronary occlusion. It is characterised by a reciprocal relation between the R S—T segments in L_1 and L_8. When the R—T segment is elevated in L_8 the S—T segment in L_1 is depressed and the R—T in lead II is usually simultaneously elevated. Conversely when the R—T segment in L_1 is elevated, the S—T segment in L_8 is depressed, while in L_2 the R—T segment is usually simultaneously elevated.

Wilson, Mcleod and others described certain changes in the initial deflections of the ventricular complex in association with myocardial infarction.

Q_1 type—characterised by the presence of a conspicuous and in most instances rather broad Q_1; the absence of Q wave in L_2 and L_3; the small amplitude of the largest of the initial deflections in L_1 and the presence of a conspicuous S in L_2 and L_3.

Q_3 type—by the absence of Q in lead I, the presence of a conspicuous Q in L_2 and L_3 and the relatively small amplitude of the initial ventricular deflection in L_2.

Q and T patterns have important complementary value. They may exist alone or together. Q_1 and T_1 types are associated with acute or healing acute infarction in the anterior apical portion of the left ventricle, and the Q_3 and T_3 types with acute or healing infarction of the posterior basal portion of the left ventricle.

In this case the electro-cadiogram pattern is of the Q_1 T_1 type and it points to an infarction in the anterier apical portion of the left ventricle but clinically, as pointed out already, no signs of pericardial friction were made out as is usual with anterior branch involvement.

Thoracic leads have recently been reported to give additional information. But they are rarely required.

Low voltage in all the leads increases the gravity of the prognosis. Typical T_1 and T_3 types are favourable rather than atypical changes. Changes may appear in 1—2 hours and may not completely return to normal for 2—3 years or more.

Treatment and Progress.

4-7-35.—Patient was given continuous Oxygen inhalations and Oxygen is experinentally shown to be a coronary dilator and helps in the formation of new vessels. The following mixture was given :—

	R_1 Calcium diuretin	grs. xx
	Glucose	℥ i
	Aqua ad	ʒ iii
F. M.	1 ℥ t. d.	

Diet.—Milk, sugar, coffee and fruit juices so as to contain plenty of vitamin C which is a coronary dilator.

4-30 p m.—Patient complains of severe pain in the precordium—$\frac{1}{6}$ gr. of omnopon was given.

5-7-35. There is cyanosis of the finger nails with a rapid pulse. Patient complains of polyuria and polydipsia. The pain in the precordium is still present. The temperature has risen to 99°6. In addition to the O_2 and the mixture the patient was given "Lacarnol"—1 cc. intramuscularly twice a day. This is a Bayer preparation and is said to be a nucleosidic vasotonic regulator and is an extract prepared from the organs of warm blooded animals especially from the heart.

6-7-35. The pain in the precordium is less, and the temperature has risen to 101°2. The pulse is rapid 108 per minute, volume poor and tension high. The right lateral border of the heart extends $\frac{1}{4}$" external to the right lateral border of the sternum. The first sound in the mitral area is very weak. The heart muscle requires toning up. Digitalis is not indicated unless there are signs of congestive heart failure. The best drug in this condition is insulin with some glucose. So in addition to others, patient was given

=Insulin 5 units—twice a day after glucose	
=Glucose	℥ ii
Imperial drink, pint	℈
F. M.	℥ iv to be given before giving insulin.

7-7-35. The pain in the precordium is less. Temperature has come down to 99°8. Pulse rate has come down to 96 per minute. The volume and tension are fair. Right border of the heart has come to the right lateral sterual line. Heart sounds are weak but regular. Rales are heard over the bases of both lungs.

8-7-35. Temperature has come down to normal. The pain is still present in the precordium. Pulse is slow and regular. Volume and tension are poor and the heart sounds are feeble. Crepitations are present over the bases of both lungs.

9-7-35. Temperature has slightly risen to 99°8. Pulse is slow and regular. Volume and tension poor. Heart sounds are still weak. No crepitations are present in the bases of both lungs.

11-7-35. 7-30 p.m. Frequent extra systoles many of them not conducted to the wrist, resulting in an irregular pulse. Mostly in pairs —Pulsus bigeminus not constant.

13-7-35. Oxygen inhalations stopped. Lacarnol injections stopped but given orally 20 drops t. d. in sugar or in milk.

15-7-35. Heart sounds are regular—First sound is soft and weak. Pulse-regular, volume and tension fair. Crepitations are present at the bases of both lungs. Temperature is normal.

16-7-35. Eggs, tomatoes and biscuits were added on to the diet

18-7-35. Pulse is irregular. Missing beat at irregular intervals, volume and tension fair. Patient says he is feeling giddy.

26-7-35 Patient's general condition is good. Complains of no pain any where. Weight is 107 lbs.

28-7-35. Mixture is changed to

Rx. Calcium diuretin	grs xx
Tr. nux vomica	♏ xv
Tr. gentian Co.	℥ i ss
Syrup	ʒ iii
Aqua ad	℥ iii

F. M. i ℥ t. d.

3-8-35. Patient's general condition is good. Heart boundaries are normal. Hearts sounds are normal. Pulse is regular, volume and tension good. A few crepitations are present over the bases of both lungs.

9-8-35. Patient's condition is good. He was made to sit up for 20 minutes. Blood pressure before sitting up was 112 and 74 and after sitting up was 112 and 80.

7-9-35. Patient is quite normal. He was made to walk for 5 minutes. The blood pressure and pulse rate both before and after the exercise were the same at 124 and 78 m.m. and 80 per minute respectively.

8-9-35. Patient's weight is 115 lbs. He was discharged.

In coronary thrombosis there must be absolute rest for a minimum period of two months and then the patient can just sit up for another

period of two months and he must have restricted activity during the rest of the year. Cases are known where patients have lived up to 17 years after an attack of coronary thrombosis and have gone about with their usual avocations with the least difficulty after the said period of rest. A particular case after recovery was *able* to ascend up hills. He subsequently died of a stroke of apoplexy and on post-mortem evidence of old coronary thrombosis was present.

Investigations.

I. Leucocytes count :—

Date.	No. per c. m. m.
4-7-35	15,625
6-7-35	17,500
8-7-35	10,275
15-7-35	9,375

II. Blood pressure and pulse pressure.

Date.	Blood pressure.		Pulse pressure.	Date.	Blood pressure.		Pulse pressure.
	Systolic.	Diastolic.			Systolic	Diastolic.	
4-7-35	172	85	87	27-7-35	108	68	40
5-7-35	154	84	70	28-7-35	106	68	38
6-7-35	135	85	50	29-7-35	110	68	42
7-7-35	124	80	44	30-7-35	110	72	38
8-7-35	120	78	42	31-7-35	110	70	40
9-7-35	140	85	55	1-8-35	106	70	36
10-7-35	138	82	56	2-8-35	106	68	38
11-7-35	136	84	52	3-8-35	114	76	38
12-7-35	134	80	54	4-8-35	110	68	42
13-7-35	125	78	47	5-8-35	108	72	36
14-7-35	122	80	42	6-8-35	106	66	40
15-7-35	128	78	50	7-8-35	104	68	36
16-7-35	122	76	46	8-8-35	106	68	38
17-7-35	130	90	40	9-8-35	112	74	38
18-7-35	120	80	40	10-8-35	128	76	52
19-7-35	120	76	44	11-8-35	124	76	48
20-7-35	105	85	20	12-8-35	126	76	50
21-7-35	120	80	40	13-8-35	118	78	40
22-7-35	120	80	40	15-8-35	118	78	40
23-7-35	115	75	40	16-8-35	118	78	40
24-7-35	114	72	42	19-8-35	118	76	42
25-7-35	108	66	42	21-8-35	120	74	46
26-7-35	110	70	40	23-8-35	120	78	42

III. Urine.

Date.	July.											August.					Sept.
	5	6	7	8	16	23	24	25	26	27	30	1	2	6	7	18	6
Sugar %age.	8	8·5	6·5	3·5	1 0	2 0	3	less than 1	less than 1	less than 1	trace	1·5	2	1·125	less than 1	1·5	less than 1
Acetone ...	Nil	Nil	Nil	Nil	Nil	Nil	+	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

My thanks are due to Dr. M. R. Guruswami Mudaliar for kindly permitting me to report this case from his wards and his valuable suggestions and to Dr. S. K. Sundaram for the valuable suggestions and help he has rendered me in the getting up of this report.

Antiquity of Surgery.

Rao Bahadur R. Krishna Rao Bhonsle, I.S.O., wrote to the *Madras Mail* of the 11th April 1935 as follows:—

Major-General Sir Frank Connor, in his recent interesting address to the Madras Rotary Club, is reported to have said that a doctor, an engineer, and a lawyer had an argument as to the antiquity of their respective professions; Sir Frank explained the position, adding that the claim for the antiquity of surgery cannot easily be refuted.

According to my information, the argument was among a doctor a lawyer, and a horticulturist. The lawyer said that Cain slew his brother Abel. The former was therefore guilty of murder for which the extreme penalty of law should have been inflicted upon him, though the lawyer might have defended him. Lawyers can defend murderers. The doctor deals in "scruples" every day while the lawyer does not. The doctor quoted from the Book of Geneis: "And the Lord God caused a deep sleep to fall upon Adam, and he slept; and he took one of his ribs and closed up the flesh thereof; and the rib, which the Lord God had taken from man, made he a woman". This was the first surgical operation in the world, and the doctor claimed antiquity for his profession. This doctor was a surgeon, while his friend, a physician, claimed an antiquity for his profession more than for surgery. The reason adduced by the physician was that the birth of EVE was itself associated with an anaesthetic in that the Lord God caused a deep sleep to fall upon Adam. The horticulturist cited for his authority the garden itself planted in Eden by the Lord God, who commanded Adam to dress it and keep it. He claimed, with pardonable pride, the greatest antiquity for his profession, and the story goes that it was accepted by his rivals of the honourable professions.

Editorial Notes.

During the recent years, Madras has been providing the Directors-General of Indian Medical Services—Generals Symons, Megaw and Sprawson. Again we are honoured by the selection of Sir Frank Connor, Kt., V. H. S., F. R. C. S., I M S., our Surgeon-General to act as Director-General of Indian Medical Services in the place of Major-General Sprawson proceeding on leave to United Kingdom. We are again more happy in that our popular Principal, Lieut.-Col. C. Newcomb, I. M. S., will be acting as the Surgeon General in the place thus fallen vacant. We extend our hearty congratulations to both.

* * *

We are now a hundred years old.

The Sub-Committee from the College Staff, which was in the nature of an advisory body in connection with the forthcoming Centenary celebration of the College, held two meetings, one, of all the Old Students of the College, and the other, a general meeting of the Old Students, leading public men and women, and Heads of various departments. As a result a representative and influential general committee with a small executive body has been formed to make the necessary arrangements for the Centenary Celebration, and also to collect funds for founding a permanent memorial to mark the first centinary.

The week of the celebration has been fixed from the 4th to 8th November 1935. The bulletins published in the local papers give a summary of all the programme. An exhibition will be put up by the various departments of the College, and will be kept open to the Profession and the Public throughout the week. Entrance will be regulated by tickets, which can be obtained at the main entrance on payment of a

small entrance fee. Talkie and silent pictures dealing with common important diseases and their prevention will also be included in the exhibition. A few events on the Sports Day (7th November) will be thrown open to all the Colleges and Schools in Madras, and special medals and prizes will be awarded to the winners as befitting a centinary occasion. A Centinary Souvenier book is being brought out and may be procured on payment at the main entrance of the new building, during the centenary week.

According to the programme now available, their Excellencies—Lord and Lady Erskine—will be present on the opening day, and also on the day of the Prize distribution of the College, and Old Boys' re-union dinner will be on the night of the 6th November and a large number is expected to grace the occasion.

The Medicel College requires the hearty co-operation of the present and old students. The latter should not forget their *Alma Mater* and should do their very best in making the centenary an unqualified success. We should not lag behind Calcutta, which has just finished her 100 years a year older than ourselves.

* * *

The following account of Dr. Garson, M. R. C. P., one of our old students will be read with great interest :—

Mr. Charles E. Garson, who was educated at St. Joseph's College, Bangalore, and who passed the Intermediate Examination of the Madras University in 1921, and the M. B B. S. of the same University in 1926, has now, added another laurel to his crown by passing the M. R. C. P. of London, which (as is well known) one of the most difficult examinations to get through.

Proceeding to England in 1934, and within seven months had passed the L. R. C. P., M. R. C. S. Examinations. Further studies resulted in his passing the M. R. C. P.

Mr. Charles Garson is in the Indian Medical Department and is, at present, on leave in Bangalore. He is one of the Garson brothers who have made cricket history at St. Joseph's College.

We congratulate Mr. Garson on his brilliant success and also his father who is an old resident of this station. And, last, but not least, we congratulate St Joseph's College (the *Alma Mater* of this brilliant student) who have turned out so many outstanding successes in the past, and who may be relied upon to turn out many more in the future. Here's to the very best Charles.

* * *

Under the caption of Madras Variety Show by Lady Medical Students of the Madras Medical College, the *Madras Mail* of 15th October has the following:—

The Medical College Lady Students are to be congratulated on a remarkably good variety show at the Museum Theatre last night.

Gay songs, gorgeous costumes and dances were some of the features.

The programme opened with a striking tableau—Mrs. Sarojini Nayudu's "Lakshmi, the lotus-born."

This was followed by a "Musical monologue" by one who seemed to be capable of an immense range of expression—from Zasu Pittian to Norma Sheareresque.

The pastoral dance idyll "Rendezvous" by the Misses Bewes, Waters and Connor was capably rendered and Beryl Connor, aged seven, as Cupid, put the finishing touch to a pretty garden scene.

The musical monologues "Viewing the Baby" and "Life's Circus," by Mrs Connor were greatly appreciated. They were items out of the ordinary.

The main play "The Poetasters of Ispahan" reflected great credit on the girls who took part in it.

Indian music, orchestral and vocal was a great success as was the dance "Krishna and the Gopikas," which was specially notable for its rhythm and colour.

The historic scenes, Allauddin's vision of Padmini in a mirror, Bhimsingh's vision of Bhavani, and sacrifice were dramatic.

Much credit for the success of the show must go to Mrs. Nimbkar whose untiring efforts were rewarded by a big audience.

In the absence of Sir Frank Connor, Surgeon-General, Lieut.-Col. Clive Newcombe, Principal of the Medical College, presided. Among those present was Mr. Bhulabhai Desai, Leader of the Opposition in the Assembly.

* * *

We are glad to have Lieut.-Col. C. M. Plumtre, I.M.S., in our midst from his leave. This has caused the following minor changes in the teaching staff of the Medical College.

Lieut.-Col. C. M. Plumptre, I.M S., is to resume his appointment as officiating Professor of Midwifery, Medical College, Madras, Superintendent and First Obstetric Physician and Gynaecologist, Government Hospital for Women and Children, Madras, with effect from the date of taking charge, *vice* Rao Bahadur A. Lakshmanaswami Mudaliar.

Rao Bahadur A. Lakshmanasawmi Mudaliar is to resume his appointment as Obstetric Physician and Gynæcologist, Government Hospital for Women and Children and Additional Professor of Midwifery, Medical College, Madras, with effect from the date of taking charge, *vice* Dr. E. Achyuta Menon.

Dr. E. Achyuta Menon is to resume his appointment as Surgeon, Ante-Natal Department, Government Hospital for Women and Children and Lecturer in Ante-Natal Care, Medical College, Madras, with effect from the date of taking charge *vice* Dr. B. Dayananda Rao.

* * *

Medical College Graduates Reception.

To the students of the Medical College the 9th day of August was a gala day when they met together under the auspices of the Medical College Association to give a hearty reception to the graduates of the year.

The distinguished guests with their degrees recently conferred on them were entertained to tea in the spacious lawns of the College and a group-photograph was taken. After spending a pleasant time at tea, the party adjourned to the new College Hall which was tastefully decorated with pastel shades. We have to thank the military students for allowing us the use of their decorations. Mention has to be made of the elaborate microphone arrangements made this year which rescued the speeches from being lost in the vicinity of the platform itself.

The programme began with a song of prayer. Major-General Sir Frank Conner, Surgeon-General with the Government of Madras, presiding over the function congratulated the graduates of the year and called on Lt.-Col. C. Newcomb to address the graduates.

The Principal of the College went up to the stage amidst laud cheers and delivered his address. He offered his congratulations to the new graduates on their recent success in the final examinations. He said that the parting of the students should not be final and reminded them of the existence of an Old Students Association for the Medical College and hoped that through the medium of this Association they would keep up their connection with the *Alma Mater* even after their graduation. It will be interesting to know that this Association has been started after due considerations for the last hundred years.

The speaker also pointed out that 'house surgeoncy or house physiciancy is the most valuable part of Medical education during which the knowledge which the students obtained sorted itself out in their minds and becomes assimilated in their mental texture'. So he

GRADUATES OF THIS YEAR.

suggested that such an appointment should be definitely inserted as a part of the Medical Course. This should not be a mere suggestion. Only those who have tried for a place as house surgeon or physician know the difficulties and the numerous conditions that they have to satisfy before they can get a place though they are prepared to do honorary work. It is earnestly hoped that the principal, being well placed, will very soon carry out his own valuable suggestion.

Since the towns are crowded with doctors and the rural districts terribly lacking in them, he advised some of the new graduates to take to rural Medical practice.

Research, he said, should become part of their general practice, and in the case of some it should engage their whole time attention. But it should be remembered that there are at least a few young Medical graduates who would too willingly accept research work if they are given an opportunity in a well equipped laboratory.

He rightly pointed out that to be a first-class university teacher it is necessary that some research should be combined with teaching. It is regrettable to note that but for a few departments in our College the rest are doing nothing by way of research, and consequently the students are bored with a lot of theory without much experimental details or practical demonstrations, and as such, the College cannot hope to produce many research students. It is discouraging to note that some who do a little research think it below their dignity to publish the results of their research in the College Magazine ; but prefer to send their papers to some foreign journals and expect us to copy them. If they do not recognize our magazine—a magazine of one of the outstanding colleges in the country—we cannot expect the College Magazine to become popular. We wish they realize the fact that is the college which provides them with the opportunities to do research and as such they are morally bound to publish the results of their research in the College magazine first in preference to any other magazine. As it is, the editors have to go about begging each and every department for articles in the magazine. It is our earnest desire that in future the heads of the various departments in the college will co-operate with us in raising the standard of the magazine in keeping with the glorious traditions of the college.

Addressing the women-graduates of the year the speaker congratulated them heartily on their increasing success (in the recent examination with the exception of one lady student, the rest of them got through). Tne speaker referred to the past when it was generally accepted that the lady students were intellectually inferior to men, but now judging from the results of the Medical College examinations alone, the speaker said that they are intellectually second to none. Perhaps in the years to come they will pass all the lady students and will probably declare that the lady students are intellectually far superior to the men students !—of course if the results of the medical college examinations alone were to be considered as criterion of intellectual superiority.

The speaker then concluded by appealing to the past and present students of the college to do everything in their power to make the college centenary a grand success

Replying on behalf of the graduates Mr. A. Gopala Menon thanked the association for the splendid reception accorded to them. As usual he narrated the sequence of events from the pre-registration class to the Final year. He said that the tuition in the ward was not efficient and he referred again to the difficulty in getting a place as a house surgeon.

This was followed by a delightful programme of music, dance, and play. The first item on the programme—" Good Bye, Oh ! College Dear "—supposed to be given by the graduates was an appropriate one for the occasion and the music went off very well but it was audiable only to a few in the front. There is no need to comment on Mr. Ramamurthi's Tamil songs which were very much liked by all.

The ' Invocation to Saraswathi ' by lady students was also well appreciated but for the indiscriminate changing of colours which reminded us of the chamaleon—a poor imitation of the Goddess. Another item of interest on the programme—one for which we had been anxiously waiting—was a Tableau, ' Padmini,' by the lady students. But for reasons of her own their Padmini chose to be invisible to us. This disappointment was the keener to us whose expectation had been raised by the masterly Tableau depicting ' Mother India in Bondage ' given by them last year.

Mr. Kosy's songs were good. The constable item, though funny, was bit of an exaggeration. The dance by the supposed ladies was rather a poor show and was a shock to many ; some of them who took part were unwieldy and some uncouth.

The " Journeys end " brought us to the end of a delightful programme when Mr. Mathuram Santhosham set the whole audience in a fit of laughter by his humorous songs, wit and inimitable memicry.

The function came to an end with a vote of thanks proposed by the General Secretary in his own characteristic way which was an interesting item by itself—a fitting conclusion indeed to the grand occasion.

J. J. LHARMARAJ.

College Graduates Reception.

GOOD BYE OH! COLLEGE DEAR:

1. College dear thou from afar to me
   Seemed like a golden treasury
   I can say at closer move with thee
   Distant grass is always green to see

Chorus.

Farewell to thee, Farewell to thee
I've wiped my tears and done with all my fears
Now thanks to thee for letting me out free
Good bye, Oh! College dear.

2. Hard it was to get thy acceptance
   Still harder was thy maintenance
   But from thee to get a clearance
   Surely was my worst experience.

3. One Ye-ar for pre-registration
   1st M. B. two in succession
   Thus in arithmetic progression
   Till I reached the final stagnation.

4. Ten long years and my himalyan skill
   Wealths of interested people
   M. B. at last my dug out purse to fill
   Mountain laboured and brought forth a squirill.

5. Weary days of fruitless enterprise
   Firings for coming without ties
   Deary girls around like butterflies
   Car-ry-ing away all our prizes.

M. SANTHOSHAM.

DANCE SONG.

1. கூட்டமாய் எல்லோரும் கூடுவோமே
   கும்மி அடித்துக் கூத்தாடுவோமே
   காலேஜ் லைஃப் வேட்கைக்கு Good bye சொல்லும்—நாளை
   களிப்புடனே கொண்டாடுவோமே.

2. Cup ball என்கிற பால்களெல்லாம்—இந்த
   கால்சட்டைக் கைச்சட்டைக் காரருக்கு
   'காலேஜ் டே' அன்றுள்ள கோலாட்டம்—நம்
   கற்புள்ள கன்னிகை மார்களுக்கு

3. Co-education உள்ள College இலே-E
   quality கேட்க்கும் இக்காலத்திலே—
   கும்மி அடிக்க நாம் கூசாமலே—இப்போ
   கூட்டிக்கொள் ளுவோம் சில ஆண்களையே.

4. மெடிக்கல் காலேஜ் மாணவர்களே—உங்கள்
   மெடிஸன் புஸ்தகம் மூடுங்களேன்
   மெதுவாய் கோலாட்டம் ஆடுங்களேன்—இன்று
   மதுரம் பாட்டையும் பாடுங்களேன்.

In Memory

OF

MISS P. A. ANNAKUTTY.

' But God had destined otherwise
So she gently fell asleep ;
A creature of the starry skies
Too lovely for the earthly to keep.'

Things undreamt of and undesired do happen. Nobody who had met and spoken with Miss P. A. Annakutty could have helped shedding many a tear when they heard the terrible tragedy which occurred on the thirtieth of May. Her Father Dr. Abraham, her only brother and she caught a virulent attack of Typhoid and though all that was humanly possible was done, it proved to be of no avail. She and her brother died on the same day while their Father was taken away three days prior to them. Three of her sisters also suffered from the same fever but God was merciful enough to spare them to their grieving mother.

Miss Annakutty was one of seven ; they were six girls and a boy. She was a short, slim girl of nineteen with a very pleasant expression. She had a profusion of long, raven black, beautiful and curly hair. She was young and light-hearted perfectly lovely in the fullness of youth and health. Poets and philosophers have sung and are singing in every possible way they can think of that life is but an empty dream. We should not wish her back as she is in a better world. Who knows ? Even now, she might be standing on the brinks of Heaven and laughing at our stupidity for feeling sad at the departure of a Happy Soul. God must have felt that she was too good and innocent to live this mirage life and so He decided to take her away to an Abode of Peace and Happiness.

It was indeed a rare privilege to some of us to have had her amidst us even though it was only for one short year. She passed her Intermediate examination from the Women's College, Trivandrum, and

joined the Medical College in July 1934. Her one great ambition was to get into the Anatomy Hall and she was never tired of talking about the things which she was going to do once she entered it but they all proved to be castles in the air—things which were never to happen in this life of hers.

She had earned the affection of one and all by her simple, unassuming and ever obliging way. She possessed a rare sense of wit and humour. She would persist talking Malayalam to everyone—no matter whether we understood her or not. She could prove herself to be an amiable companion in whatever distressing mood one might be. ' Beauty ', ' Kutty ', ' Kochupengal ', were a few of the many pet names that her friends had given her. She knew small bits from ever so many funny songs and we would never feel it dull if only we had her with us.

A hundred times a day, we think of the sweetest little girl we had and we miss in her a dear friend, classmate and hostelmate. By losing her, the noble profession is poorer by one prospective and worthy member. May He rest her father's, brother's and her soul in peace and help the unfortunate, sore-striken mother and the sisters to bear up with their fortitude. Our sweet little Kutty is gone—gone never to come back but may her memory be green for ever and ever.

M. G. SHABARI.

Memoirs of a Village Doctor.

By S. Balakrishnan, IV Year.

To do justice to my friend Dr. B, I should say at the outset that he possessed that fine imagination which we always miss in Doctors in general. The unsentimental atmosphere and the sort of exacting intensity which we find in men bent on an accurate knowledge of facts and a critical appreciation of them, wherewith to proceed into the unknown regions of disease and on which to base their diagnosis and treatment, was tempered in his vast mind by a rich human understanding. Though only a country doctor he was as thorough and capable as any of his famous colleagues in Madras His poetic imagination was responsible for his choosing this obscure line in a profession which, what with his capability and affability, might have fetched him universal recognition and a Rolls Royce besides. He was a patriot and he believed in actually serving his fellowmen instead of getting rich himself.

He had his consulting room in Kuttur, which was furnished to perfection. Crowning his gallery of pictures was Rembrandt's "The Anatomy Lesson." His sense of duty as a Doctor was brought out by the famous Hippocratic Oath which in a beautiful frame fittingly adorned his consulting room. His taste for literature was displayed in the various quotations which he had similarly hung up framed, from authors like Byron, Pope, Addison and Zimmerman. Being his friend, I cannot forbear inserting here at least one of his chosen quotations—this one from Addison—as showing the spirit of my friend: "A wealthy doctor who can help a poor man, and will not without a fee has less sense of humanity than a ruffian who kills a rich man to supply his necessities. It is something monstrous to consider a man of liberal education tearing out the bowels of a poor family by taking for a visit what would keep them a week."

His manuscript was never intended for public eye, and thus all the more deserving of a perusal, since there will be here no dishonest attempts to hide his faults and shortcomings. He being a literary

man, his manuscript is profusely dotted over with moralisations and reflections as they arose from his experiences. I shall give on this occasion a portion which is more free from these than elsewhere, in order that it may not be tiring:

"I have seen the human body in its stark nakedness—wonderful mechanism indeed, more wonderful at every review—which makes us pause and consider again the saying of antiquity that man is the noblest work of God. A worn-out saying this, stale from repetitions, but only a doctor and especially a student of Anatomy, can understand its full significance. By its study we recognize in however prosaic a way, our kinship with the rest of creation. What had been emotionally realized by our poets of old like Kalidasa, what had been brought to the forefront by evolutionists like Darwin, we appreciate in every minute of our existence. What has been the central fact of Hinduism is merely a transcendent realization of this principle, what according to Gandhi is 'one of the most wonderful phenomena of human evolution'—I refer to the doctrine of 'Cow-Protection', by which man concludes an alliance with his dumb brethren, by which in the beautiful words of Gandhi, 'man is taken beyond his species and is enjoined to realize his identity with all that lives'.

Talking of Gandhi reminds me of another illustrious man of our country, and in this connection I shall relate an experience of mine which came across me in my pofessional career,

On a clear autumn night when for people of my mind it was more pleasing to think of Kalidasa and Valmiki of whom the lucid moon and the cloudless sky remind, than to trouble one's mind with the aetiology and the pathology of a magnificent disease, I was taking a lonely walk in the meadows by my house. People who know me will not be surprised to hear of my nocturnal wanderings. I have always the tendency to roam, and a good many villages have I visited in this wise, to extend a helping hand to the sick and the suffering as far as mine can reach. And varied and rich have been my experiences in my movements among men and women, which have thus been stored in my mind, not to speak of the various incidents of human life which are accessible only to a doctor, and of the striking scenes of sleeping vernal beauties which I have seen.

In the distance I could see a moving light, blinking in the clear moonlight, advancing slowly. Later I could hear the creaking noise of a bullock-cart which startled the owl and disturbed the quiet of the night air. I was thinking of Homer's classical description of the moon when I perceived the driver in the cart peer at me. I took no notice and the cart passed by me. It had passed a yard or two when it stopped, and I saw the driver beckoning to me. On my going near he got down, and accosted me very humbly. He explained that he recognized me only then, that his son was laid down dangerously with fever, and that the boy's mother, the only person now remaining in the house, was absolutely disconsolate at the fate of her only child.

The slightest imaginary discomforts of the rich are exaggerated to the utmost; and on the other hand I believe every word of the helpless poor in such circumstances. So without more ado than taking the medicine chest and the necessary things I got into the poor fellow's cart, and we dashed off (I) as fast as the bullock could carry us.

At this juncture I can easily picture to myself my high brow friends at Madras smile to themselves as they read this, but personally I consider myself superior to them for this very reason. Let it be remembered that Ramakrishna Paramahamsa and Mahathma Gandhi have swept and cleansed the houses of the 'pariah'—or, not to use this nauseating term, the now famous 'Harijan'.

For a time we had no talk with each other. My escort was a robust man of middle age, with simplicity and candour speaking from his features which however were not exceptionally intellectual. I was studying his expressions, when he suddenly turned to me, and said, apparently on what he had been pondering over so far, "I think what troubles him is his fever which has mounted to his brain." His voice was hoarse and low and he relapsed into silence. I made no remark but on the way I got as much information as I could from him, regarding my patient.

When I saw my patient before me even I began to give way a little, though my mind had been hardened by frequent sights of woe and pain. The boy was in very high fever and getting comatose. Hot skin, flushed face, heavy stertorous breathing, contracted pupils, and an enlarged spleen. I hardened my mind and proceeded with my methodical

investigations. It was a case of cerebral malaria. Since malaria was common then, I had fortunately every thing necessary with me. I gave him injections of quinine and hexamine. I made a lumbar puncture and let some fluid out. The decompression had effect. The boy smiled feebly at me. It was a captivating smile, a smile which flitted on his lips from the fairy-land, from whence he had dropped to this earth again owing to my intrusion.

But hear a wonder for whose sake I tell this experience now. Like all doctors, my nerves are proof against the human weakness of nervousness and pity at sight of suffering and pain. Pity I banish from me when I am by a bed side, for it will interfere with my reason, and then I cannot do my duty to my patient. But on this occasion, at sight of this boy when I had not known before, even I broke down. There was something in his face, something great and noble, something of the heroic stamp, something ineffable. At sight of such a grand piece of human symphony passing into silence, lost to this world, I was torn with an intolerable anguish. For I knew the case was hopeless.

What a thrilling sensation suffused over my frame as he smiled. And as he spoke, my eyes glistened. "Ah, it is stuffy here," he cried, "very stuffy. Mother, where are you staying away? Come here. See...Everything is boundless and dazzling .... Bharatha Matha, I came to thee...I hear thy shackles break!—Oh dream of Joy!"

With a downcast look I turned back for my house The boy's father accompanied me to the cart.

"Doctor," said he, "I will accompany you for some distance."

In a hoarse voice he spoke, "Ah how my son smiled upon you Doctor. I know what his smile means. Doctor, how your face brightened at his smile! There is something in it, I know. That itself gave me more consolation than the smile alone could" In fact my patient's father had taken so much liking to me from that trivial response of mine, that he confided to me his whole story.

He told me that his great-grandfather and his ancesters had been poets and artists and scholars in the court of a Tamil King, that the kingdom had later perished, bad times had fallen upon them, and he,

the last scion of the race, was reduced to the miserable occupation of a cart-driver. He was ashamed of himself, and ashamed in his present circumstances to confess to anybody, his great and cultured ancestry. But somehow he had told me of this.....

With the scientific reasoning which is characterastic of me, I knew at once the reason why I was so much affected at the sight of the boy passing away. This boy was descended of a high family, and the family greatness, I can now say, was sure to have revived in him. It is mostly the case that the son of a very great man is often a mediocre and does not reach the heights of his father. If I may so express it, the grandness in the heridity had exhausted itself in the great father. The grandson of this great man is perhaps still less great, till the power of heredity again gushes forth in a late descendent. This explains why all the members in a great family are not equally great, and at intervals a great man appears among them. In this boy, his greatness had been so well mirrored in his face, that through he was born of a poor and obscure family, I as a doctor had been able to detect the greatness in him. And the pang I had felt was at what was being lost to the country in his death.

* * *

About two years later I had been to a friend's house. He, unlike the busy doctor that I am, is immersed in the daily happenings of the world and is immensely alive to the marching times.

He was showing me some of the pictures which he had collected.

When he came to one of these, he covered it with another and said, "come, let us see. I have noted here under this picture what one of our journalists, Mr. Chelapathi Rau, has said about this man. I will read it to you and let me see if you can tell me from the account whose photo it is." With this, he read out, ".....He is a leader after the country's heart, excitable, sententious, dogmatic. He is as intellectual as Tilak, as sincere and downright as Gandhi, as coldblooded and logical as his father, with his own individual outlook and temper. Ready in action, vehement in speech, he represents, more than Gandhi, the youth and other popular etements in the country; and his mere xistence is enough to inflame public opinion. He is perhaps too heroic

for the present day lumbering doggerel history. But as long as he is alive, he stands as a portent of illimitable power."

"It is Jawaharlal Nehru!" I cried. Of course it was.

"This photo shows him as a boy," said my friend showing it to me.

On seeing the picture, you can imagine my surprise when I found that feature for feature, expression for expression, it was the exact likeness of the little boy whom I was unable to save that fateful day.

It was then that I knew the exact secret of that unusual pang which seized me at that time; and realized fully what the country had lost when that poor young patient of mine passed away on the clear autumn night two years back."

A Reverie

By V.

The dissection of the dead was just finished and full justice had been done to the ever hungry *Little Mary*. Having nothing at hand to do till the hour of midnoon (I am one of those newly registered medicoes) when *Mr. or Mrs. Skeleton* will be pleased to spare one of his or her numerous constituents to rack our brains with (or for the matter of that, to lull to a nice noon's nap those who would so care to be lulled), I took it into my head to ease myself for a while in the nice lounges in the Library (I am afraid I do not know whether I should call it the Library or the Common Hall as some claim it; but anyway I prefer to call it the Library only.) It is the hour when most of the young men and women of the College are busily engaged and as such the Library was all empty but for a few here and there who were sailing in the same boat as I and who sought the asylum of the Library for the same purpose as I did.

In the cosy corner of a comfortable lounge under the cool breeze of the electric fan I soon fell into a reverie. It was a bright sunny morning and I was fast cycling into the college. The old gateman was there and performed his topical *salam* soon I was past. He is really a wonderful man. After all these years of good and long service to the British Crown he is turned out into a machine. His signalling is automatic and at times goes to an extreme when the on coming traffic on the other side is not counted. He is a man who does not differentiate the various people if only one condition is satisfied, *viz.*, a decent dress and a vehicle; and with the suit and vehicle goes his typical *salam*.

To my astonishment on entering the college I found the foot-ball field replaced by a series of Tennis courts. Around one there was a crowd witnessing a match. "Well played Miss...", "Good shot" and such other slogans attracked my attention and I was wondering what wonderful devil has brought the fair comrades of the College to the bold step of playing a match on the College grounds. Just to enjoy the fun that hung about I steered myself towards there.

Contrary to my expectations the game was a mixed one—which thing was of course all the more interesting, and the standard of play being not too bad I was inclined to witness it for a time. My time there had not been really a waste. The game as a matter of fact could not make good the time wasted, but the fun all about was remuneration not bad. One player went by the public title Mr. Frog—probably his short neck squeezed in between the shoulders earned him that name. He knew the game, but was too nervous, either due to the jeering and clapping from outside or due to the presence of ladies. His partner stood out in bold relief. She had all the tactics and ways of a veteran and took the game calmly and steadily. Their opponents were quite the reverse. They had nice names and the crowd never spared them. Mr. V. R. D. M. (or some such name consisting of some stray letters of the Alphabet) was quite a good player and scored many an ace at many a crucial point. He looked the world in the face and never cared for the crowd. His partner was a funny sort of creature. She would encroach on her partner time and again, in spite of not doing her own bit, spoil and then burst into a host of excuses. She was much hailed by the crowd as Miss Nasty (god alone knows what trouble she undertook to earn such a name), and I only pitied her, for she could as well have had more experience before making an appearance.

Afterwards I moved to another corner of the field where a cricket match was in swing. Meanwhile the sky became suddenly overcast with dark blue clouds and strong wind began to blow from the sea. The sky became darker every minute and the wind grew stronger and stronger till at last it was a great gale. There was a slight drizzle and in a few minutes water began to rush in from the sea. The tide swelled till the whole field and city was submerged and left in knee deep water. There was panic everywhere and it was a sight to see young medicoes, men and women struggling through the water. Every one was on the lookout for a place of safety lest the tide might swell still more.

I wanted to have a view of the sort of affairs outside and leaving my byce with a friend made my way towards the Memorial Hall. By that time the tide swelled a title more but still possible to wade through. There I ran into an acquaintance of mine who on his way home was caught in the tide. A tall lean dark personality dressed up to the nines (one can easily mistake him for an American Negro but for the

pented lips), he was in a fit of rage at seeing his new grey flannels drenched in water. He was very vociferous at the predicament into which he was put. He complained in bitter language why the Government should not have taken into its head to build a dyke to safeguard this important city of Madras which had been one of the first places of shelter when the British bartered and assumed the sole of banias. He found fault with the Corporation for sleeping over such a matter of grave importance for which the Government never cared He said he was going to wake up that Rip Van Winkle of the Mayor of the Corporation and bring home to him the importance of and the immediate necessity for a dyke for the Madras coast; and asked me why I should not follow him as his friend Mr. N. I laughed within myself at his wonderful ideas and excused myself, thanking him for the high honour he had done in asking me to follow him to the civic head of the city of Madras.

Taking his leave I retraced my steps to the College gate and proceeded towards the Fort Station. From the B. O. C. buildings to the Over bridge it was one sheet of water and I much wished I had a small boat. Hardly had I passed the Station bridge when I saw a lady tumbling down on the road margin and a friend of hers raising her up. They were in search of something fallen under water. I went nearer. They were not strangers to me; nor were they my acquaintances. I remembered to have met them more than once at one of the city cafes. Being known to them by face at least, and realising their situation, I asked if I could do anything for them. One of them requested me if I could find a new hand bag of hers which she bought that morning and which slipped from off her hands in her fall. Luckily I could secure for her, her bag and saw them off to the Station platform which was not submerged. The lady who lost the bag denounced in vehement terms the Municipal authorities in not laying the roads at a considerably raised level and said that that council of venerable people ought to have taken proper precautions for such troubles as the tide. She thanked me much and from the corner of her squint eye bestowed an awful look which was probably meant to partake of what her sweet lips expressed. Her companion opined that in these days of unemployment it would be better for one to take up business in life belts, life buoys and other swimming requirements and life saving devices, in a place like Madras. I congratulated her on her worthy idea and took their leave.

Next I was on the Esplanade Road. It was all a sheet of water. The whole traffic was dislocated and trams were suspended. Water rushed into all the low rooped shops and people were aimlessly going here and there. A host of pressmen were busy with their Cameras (Reader! You can get rid of an Insurance Agent at least when calamity is at hand; but not so the case with the pressman. More of their tribe gather nearer the greater the calamity.) I steered myself towards Parry's corner and thence along the Beach Road. By the time I reached the Railway gate I met my friend S. He was very enthusiastic and said it was a very wonderful time. I was glad that there was at least one in my friend who could side with Nature in her ravages. He somehow got into possession of a small boat and was trying to paddle it towards the M. U. C. grounds. Hailed by him I got into that little boat. It was a lot of difficulty to start the boat in such shallow water. But luckily for us (and we did not care for the outside world so long were in the boat) there was another rush from the sea and swell in the tide was such that it afforded sufficient depth of water. Moreover by the time we reached the low lying fields of the M. U. C. we found it easier to row about as we pleased. We wished to cross the Cooum and get into the Island Grounds. In a few minutes we were in the Cooum which afforded an excellent place for rowing. As is always the case that the end is preceded by a last bright flicker, that had been the foreboding of a nasty trouble which we never anticipated. For soon the tide began to recede and with it we were carried down the river. The current was so strong that we found it impossible for us to steer the boat ashore and vainly trying do so we made a tremendous effort tremendous only to result in the boat turning topsy turvy. Soon I was feeling a heavy blow of the oar on my head.

When I woke up it was my friend, M. giving me a nice knock on the head, warning me that the time was up for the Osteology class. Reader, I was soon off to that class only to fall into another Reverie."

Emprientes Premiers

By N. Nellayappan.

Melancholy was the transition in the month of July 1935, from the frequently intervening holidays of the Arts Colleges to the monotonus five, sometimes six hours a day at the Medical College. True, we could boast of half days off and all that sort of thing in July. But August came and things took quite a serious turn. We found ourselves flicked of our off days. I shuddered when I thought of those days when people will have to say of me,

" Oft have we seen him at peep of dawn,
Brushing with hasty steps the dews away,
To meet the sun in the anatomy theatre ;
And we have seen him return,
As the curfew lolls the knell of parting day.

Our classes generally are wonderful fun. The pressure on the door of lecture room just before it is opened officially by the 'attender, if calculated would run into thousands of tons.

When the usher sneaks away,
Through creaks, and inlets making,
Comes, flooding in, the roaring main.

'Fans' rush for the seats nearest the dames. The feeble ones who vie, unsuccessfully, seek consolation in calling the fortunate few wasters. They go to the extent of saying that there are lovers in the class who sigh like furnaces and make woeful ballads to their mistresses' eyebrow. Sympathising with the down trodden, I have to note that this is the last institution in which sheer brute force should get the better of intellect. Late comers are always under the dread of getting introduced to the classes in unsavoury labels.

* First Impressions.

Talking of classes reminds me of our Chemistry lectures. These are *affaires trees Interessants* *. The arrival of the Professor cum Principal is preceded by so many formalities that one is reminded of those lines of Tennyson :

" Who is he that cometh like an honoured guest,
With banner and with music—"

The only things that are wanting are banner and music. We wait for the 'honoured guest' amidst pin drop silence which gets broken occasionaly by the cooing of a pervert.

Dress well, that forms an important topic. In my inter days I used to think that the Medical College was a sort of Hollywood where medicoes strutted about as immaculately dressed as the film stars. But the disillusionment came ere long and showed me that.

'Things are not what they seem.' I saw some of our elder brothers, appearing in all the glory of the west except for the barelegs and oriental sands. Most of these getlemen had the pretext of a wound in the foot. But they could have safely emulated some of their brethren who were all eastern except for the tie which is a sort of passe partout from the first year onwards. It is a fact that the latter leaves a bit on the comical side of affairs, but the former is tragically ludicrous.

On the convocation day in years hence when I receive my degree—excuse my optimism and do not be surprised that a student of this college should have still some optimism left—I can very well say with the superannuated man that I have lived to forget that there are such things as holidays or to remember them but as the prerogatives of childhood.

* Very interesting affairs.

From the Dead to the Living.

BY BOILER.

From the dead to the living—a good riddance of Murugesh, Viroji, Cunningham and Company. Whether the motors downstairs go on top gear or reverse, or whether the drum is smoked or nickeled, matters not in the least. It is mighty silly to watch a frog start out for a walk minus its head. Enough hearts have been ripped and salined for a couple of years. No more 'rekkods' of them need be kept, and no such 'worried' life to be lived again.

The hospital is quite a serious affair and no biology business. Bodies, bottles and ampoules teem with life. The presiding deity may be tall or short, whiskered or non-whiskered, in buckram or kendal green, but brain first and rest no where. It is a clock work smooth, steady, and eminently human. The hospital is a composite edifice. Parts of it have stood and parts of it have still to stand the test of time. It is a study in the evolution of good sanitation, a fitting monument to a restless and advancing science.

Everything is on rubber for noise is taboo. Ramas are cooed in sweet tones. The incantation satisfies a religious soul, but practical No. 17 gets his bed pan too and some tow to boot. Truly more things are wrought by prayer than the world dreams of. Prayer or curse, Rama here is tarred and feathered.

The pretty little thing behind starched front is a specialist in pulse taking. Her art rivals that of a trolley porter on a crowded railway platform. She is completely sterilised, tooth and nail. She is always anxious to please. She has great expectations of pictures and gay times—if Nature only had been a bit kind. Her smile decalcifies the spines of those who are too much in the neighbourhood.

The fresher feels he is nowhere. How can the poor bloke bear this sudden load of responsibility, on a fine Monday morning? Beds, beds everywhere. He is dazed. Would the seniors have him under their wings? Perhaps they have no wings! They are a silent lot,

some not inclined to lend a hand, others not knowing how to do the stunt. Ignorance, like history, repeats itself in the wards, and the fresher remains fresh enough pretty long.

To many the choice of a stethescope is as important as the choice of a mate in life. Do not both cater for a life time? But every alternate case is as sad as that of Moses at the fair. It is a passport for good reception in trams or in buses. It may be the object of violent criticism from a fellow passenger who happens to be sceptic. But the caravan passes on.

Case sheet writing is an art of which a policeman may be proud. You can concoct—if your conscience takes French leave If you are really capable, you can locate a vague pain, lull suspicions, and wring out honest confessions. If the age of the patient,—not necessarily female—is a mystery, hazard a shrewd guess. When gentlemen of twelve summers try to pass off for eighteen, obviously with an eye for more rations, remind them money cannot be grown in cultures, and the hospital is everyday going under the axe. For guys with mechanically turned heads, who demand a thorough overhaul and replacement of worn out parts, indicate an imperial drink. But if you happen to be a mutton headed chump, the whole show will then be a wash out.

When the boss comes there is a flutter in the hearts of chroniclers and hopes elsewhere. A stiff hour may follow if the chief wishes it—questions without end, searchings of hearts and gnashing of teeth. Straight shoulders droop, fair cheeks exhibit a play of colours. After the ordeal the McGrath Cafe provides the cup that cheers, and the fag that consoles.

The Student Docs.

1. Round and round the wards we walk,
   Swinging the " Steths " and indulging in talk,
   A little to hear and less to learn,
   A job to hold and something to earn.

2. Round and round the beds we stand,
   Seeming to look like Doctor Grand,
   But blinking eyes and answers nil,
   The Boss's hearts with sadness fill

3. Round and round the patients form,
   Legs and trunk and face and arm,
   Patient gives his history long,
   And gazes at the student throng.

4. Round and Round the Boss's eyes,
   Sees the Student what he tries,
   Bangs the patient or his knee.
   " This is tendon jerk you see ! "

5. Round and round the lungs and heart,
   Verified as on the chart,
   " Diagnosis Sirs? " he cries—
   Lady's voice so sweet replies !

6. Round and round the theatre room,
   Boss's hands in gloves do bloom,
   Shrouded regions they explore,
   Students think it's just a bore—

7. Round and round the clinical lab,
   Urine seen at every slab,
   And if in case the slides you miss,
   " The next door Boss " his help in this.

The Student Docs

8. Round and round the O. P. white,
   Student numbers what a sight !
   Fled from bed and breakfast " guess "
   " Attendance at SEVEN ! " says S. A. S.

9. Round and *round* O. P. the *through*,
   Dressings a hateful thing to do,
   But stylish, dainty student men,
   Leave this " No doubt ! " to ladies then.

10. Thus round and round the crowd moves on,
    For such have come and such have gone—
    Swinging the " Steths " and indulging in talk,
    Is a notable feature of the student " Doc "

" MISS STUDENT DOC "

Medical College Athletic Club.

CRICKET.

As expected and desired by all lovers of the game of our college K. R. Rama Rao was elected Captain this year. We congratulate him on his getting the captaincy this year and we hope that he will acquit himself creditably. We are sure that he realises that being a mere Bowler is altogether different from being a captain of the team as well and it is up to him to show off both as a meritorious and lovable captain and the Best Bowler.

We miss C. J. Periera, our Star Batsman very badly. He was one of our opening Batsmen for the past 6 years or so and with Garson he has made a history in Intercollegiate cricket. He has completed his course and has now started a life on his own. We congratulate him on his success and we wish him all success and prosperity in life.

The team itself is almost the same as last year's. Garson our best run getter and batsman and Siva Raman a "stonewaller" open our innings this year. The latter unfortunately has a very funny tendency of getting run out very often.

Dr. Kote had a fracture and has left us suddenly. This is an unlooked for blow to the cricket team and has affected our batting strength very badly. More than the loss to the team it is certainly too much of a hardship for him to bear under his circumstances we are very sorry for him and we hope and pray that he will be alright soon.

In the absence of Dr. Kote and C. J. Pereira our batting strength has come down. Luckily Garson is "compensatorily hperactive" and is making big scores consistently. We hope that he will continue to the end of the season life this.

D'Costa and A. V. Rajagopalan are two mighty hitters and once they get going there is no knowing where they will end. Our opponents know the good and bad of it all best.

Haridass, Hogg and S. V. T. Chari and now and again Wilkinson and Atma Rao can make a score if necessary and our captain continues be the steady batsman he was.

Our fielding is certainly not bad but we can do better if we only exert ourselves. There has been no need so far to exert and we hope there never will be any need.

Our bowling strength remained the same as ever. In D'Silva a a new comer to the collge we found a good fast bowler. But unfortunately he has sprained his bowling arm and has been advised six months' rest. So we cannot have him any more this season.

Rama Rao has not the usual sting in his bowling but is still the best man for our attack. G. A. Aleem and R. A. Garson are two different types of spin bowlers and the former is always successful with his deceptive flight and spin. Wilkinson and A. V. Rajagopalan have not had many opportunities for showing off because the opponents either go down before the first two changes are wrung or they slog all bowlers alike. Our opponents so far have been either too good or too bad. We have yet to face our equals and measure our strength with them.

Besides D'Silva, Muthukumaras ami and Bhasker Mahadevan are two new comers who can play well. Muthukumaraswami is a steady batsmen and can bowl a little. Mahadevan is a good wicket keeper and can also bat, bowl and field well. Both are promising young men and will begin to play for the first eleven regularly in due course.

CRICKETERES.

FOOTBALL.

Our Football began this year in right earnest as early as July. All the players exhibited a keen interest in the game, and it was indeed encouraging to find some of them leaving other games for the sake of football.

Out of the eleven matches we have to play in the Intercollegiate League Tournament six were played so far, and we won them all. The following are the results :—

Government Mahomeden College	5—1.
Madras Christian College	5—2.
Engineering College	2—0.
Presidency College	3—1.
Pachaiyappa's College	13—0.
Teacher's College	Walk over

Five more matches remain to be played early next term and we hope to fare better.

We are going on tour to Hyderabad and it is hoped that the real sportsmanship and hearty co-operation which prevail among our players will help us to exhibit a high standard of the game.

The College is represented by the following: B. Pereira (Goal); Oommen, and Sreedharan (Backs); M'cMurray, Hall, and Orton (Half-backs); Visvanathan, D'Costa, Cullen, Haridoss and A. G. Chacko (Forwards).

Reserves.—Thomas, Chacko, C. W., and Shetty.

P. O. OOMMEN,

Captain.

TENNIS.

We are proud to announce that our College has won the doubles trophy in the Inter-collegiate Tennis Tournaments this year. It is all the more creditable to note that the college distinguished itself in the above Tournament after a long period of sixteen years. The College was represented by Goodsir Cullen and Mohan Rangam and this pair was chosen after a series of trial matches arranged by the Sports Secretary. It is gratifying to note that the Sports Secretary gave every enthusiast a fair chance.

Goodsir Cullen represents the College in the Singles and we are glad to note that he has come up to the final stage of the tournament. We hope that he will do well to keep the College colours flying.

Mohan Rangam and Goodsir Cullen deserve our warmest congratulations on their meritorious performance.

The Sports Secretary feels highly thankful to the Secretary and members of the Ladies' Tennis Club of the College for having rendered all facilities during the trial matches.

HOCKEY.

True to the high traditions of the glorious past the Medical College hockey team this year, has once again shone forth on the field and won an un-precedented distinction for her *alma mater*. The College, holders of the M. U. C. Cup, distinguished itself by defending the gold cup, winning the inter-collegiate hockey, and coming up finalists in the S. I. A. A. and M. C. C. tournaments, and thus created a position unparalleled in the history of the College and in the history of any of the other local teams a very enviable position indeed.

The season commenced with the Inter-Collegiate matches which we won with considerable ease. Then came the M. U. C. Gold Cup Hockey Tournament, and after a brilliant display of a series of matches our team came out unscathed and victorious, winning every match outright. This was the first victory in this season's tournaments, and our team in the height of its form promised greater doings in the on-coming tournaments, but by fortunes furious fickle wheel things turned out rather differently.

Hat upon the heels of the M. U. C. tourney, the S. I. A. A. began. Though going down to the Muslims in the finals, our team provided thrilling hockey when they defeated the much talked of and clever Xaverian team from Calcutta and eliminated the Kirkee United Club an other outside team, and the M. S. M. Railway. Perhaps the over confidence of our team will plead for the unfortunate issue.

In the M. C. C. tourney, our team met its Waterloo when the M. S. M. carried away the trophy. The team true to its colours, however, need have no regrets, for they cut short the progress of the former holders of this cup—the Kirkee Ordinance—and avenged their loss in the S. I. A. A. by defeating the winners by a very wide margin.

Ernest Cullen, the talented captain and centre half of our team needs a word of special praise, as much of the successes gained were in

great measure due to his fine captaining and unstinting endeavours for the interests of the team—Thanks Cullen.

Four of our players, Cullen, D'Costa, MacNamara and Satur were selected this year to represent Madras in the Beighton Cup, Cullen holding the position of Captain, and the same four with the exception of MacNamara who was replaced by Gomes were chosen resently to represent the Madras side against the All-India Olympic Team that had returned from New Zealand.

There was practically no change in our team from last years.

The team needs to be congratulated on its splendid performances and we wish it all success in the coming years.

The Team Sivaraman, Macmurray, MacNamara, B. Pereira, Cullen, Orton, D'Costa, Hogg, MacNamara, Satur and Gomes.

Hockey Enthusiast.

Association Notes.

The Annual General Body Meeting of the Association was held in the College common hall at 1-15 P.M. on the 15th of July 1935 when Lt.-Col. C. Newcomb, I.M.S., presided. The minutes of the previous general body meeting was read by the General Secretary and was passed. The President welcomed the new members of the Association. And the following members of the staff were re-elected as office-bearers of the Association for 1935-1936.

Vice-Presidents.

Dr. M. R. Guruswamy Mudaliar, B.A., M.D.

„ A. Lakshmanaswamy Mudaliar, B.A., M.D., F.C.O B.

President, Magazine Committee.

Lt.-Col. K. G. Pandalai, F.R.C S., I.M.S.

Hony. Treasurer.

Dr. K. S. Viswanathan, B.A., M B.B S., B S.Sc.

General Editor.

Dr. S. Thambiah, M.C., M.R.C.P., D.T.M. & H.

Associate Editor.

Dr. N. S. Narasimhan, F.R.C.S.

Then the President called for the nominations of the assistant secretary, two student editors, sports secretary and captains for foot-ball, hockey and cricket.

Assistant Secretary for the Association Mr. K. Nagappa Alva was elected unanimously.

Student Editors.—Mr. J. J. Dharmaraj (IV Year) and Mr. S. Balakrishnan (IV Year) were elected unopposed.

Sports Secretary.—Names of Mr. M. Shamsuddin and Mr. K. Panchapikesan were proposed. At the election held by closed ballot on 17th July Mr. K. Panchapikesan was declared elected.

The following captains for the college teams were elected without opposition.

Hockey—Mr. E. G. Cullen.

Football—Mr Oommen.

Cricket—Mr. K. Rama Rao.

Lastly the Secretary gave a short speech explaining the advantages of having a dramatic club in the college and requested the members to help him to start one.

With a vote of thanks to the President the meeting came to a close.

The following are the class representatives for the year 1935-1936.

Mr. P. A. Kassim	...	Final Year.
,, A. Bhaskara Menon	...	Fourth Year.
,, S. Sivarajan	...	Third Year.
,, B. V. Krishna Rao	...	Second Year.
,, C. T. Subrahmaniam	...	First Year.
,, John E. Koshy	...	Preregistration.
,, A. D. Sausman	...	Military Students.
Miss Abusha Marikhar	...	Lady Students.

During the course of this term two meetings of the Association were held in the Physiology lecture hall to express our sorrow at the untimely and premature deaths of Miss P. A. Annakutti (I Year) and Mr. K. Kunhiraman (V Year).

Genl. Secretary.