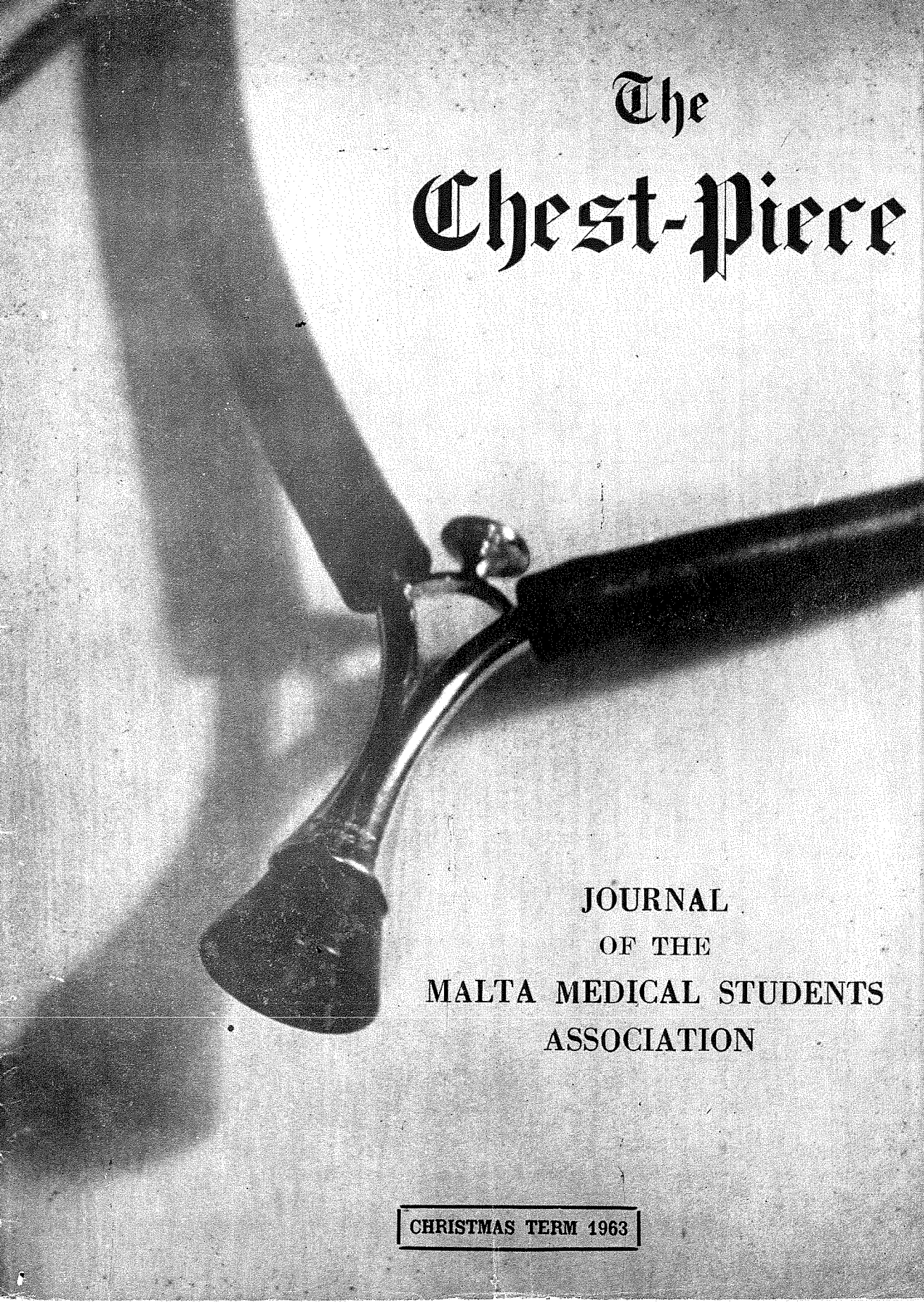

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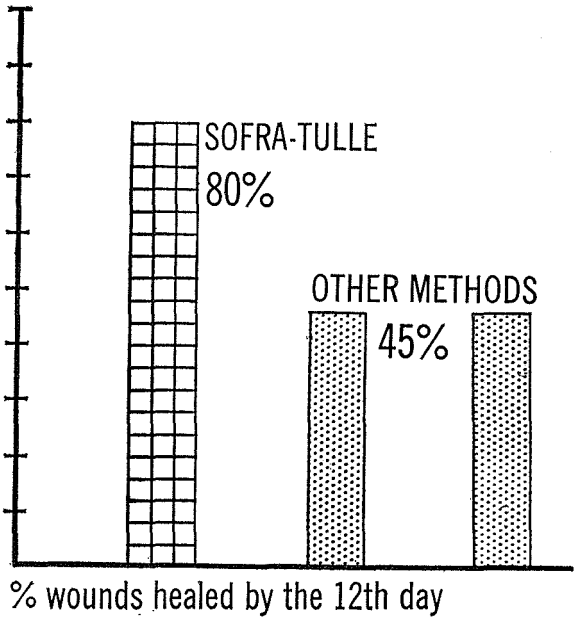

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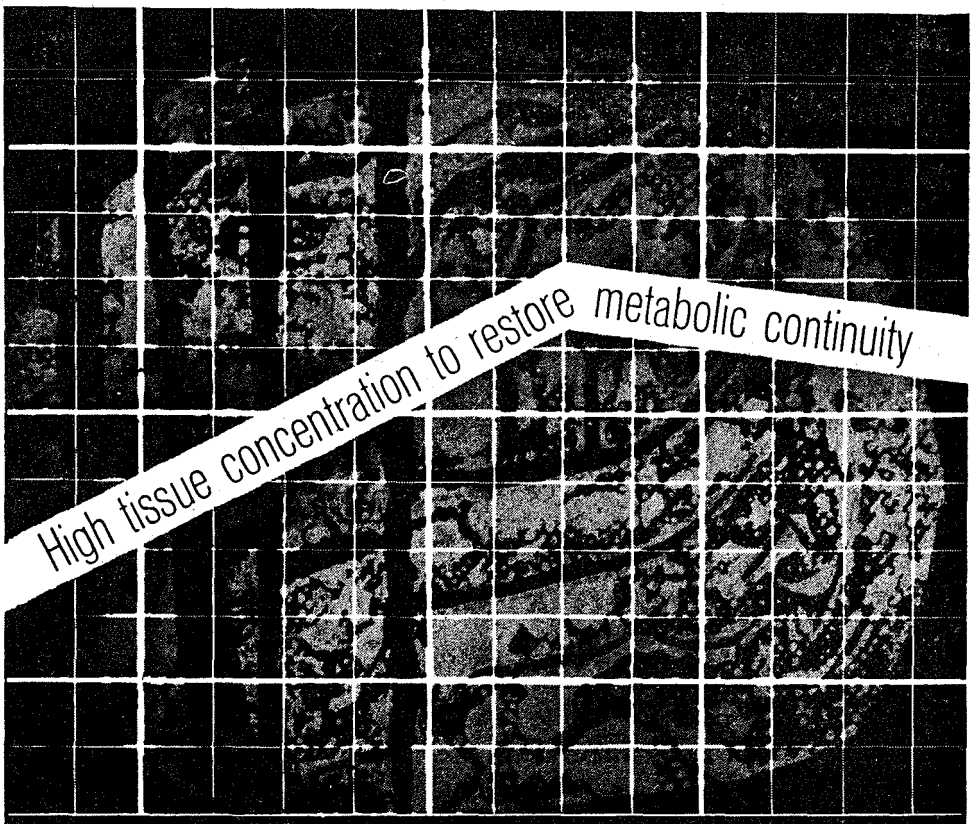

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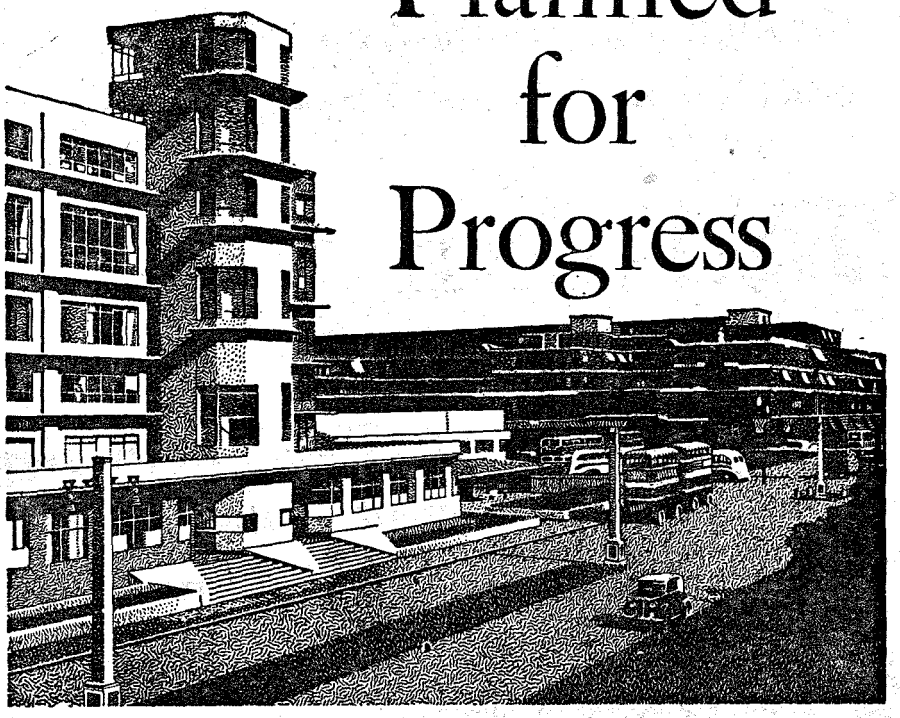

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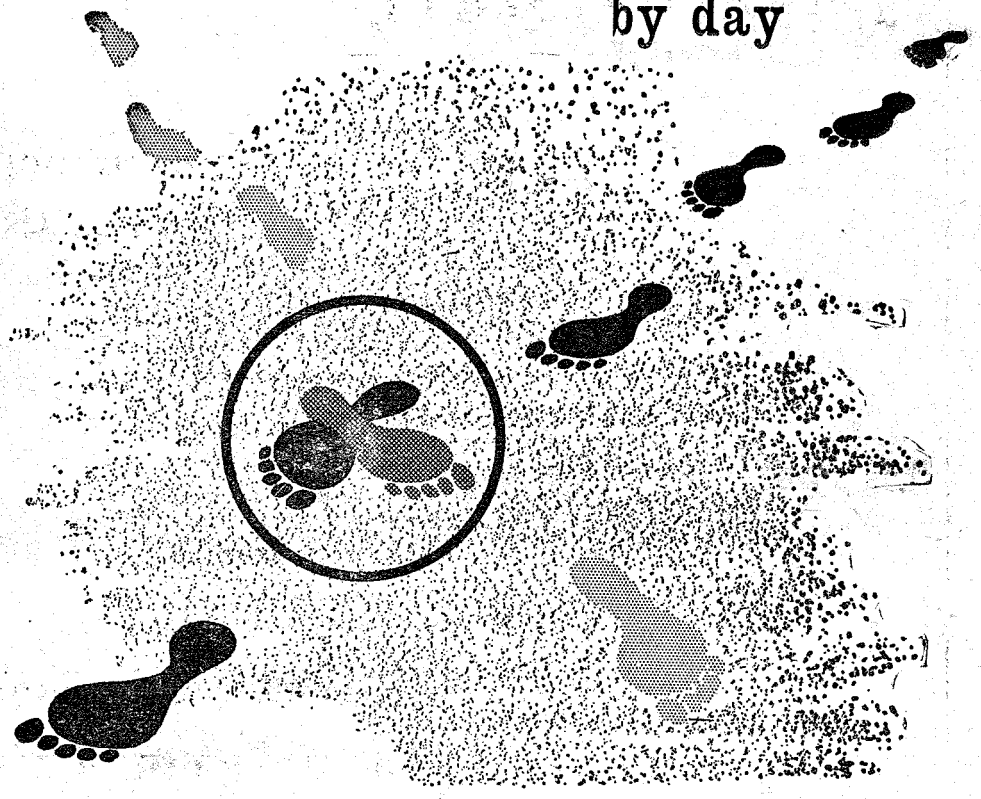

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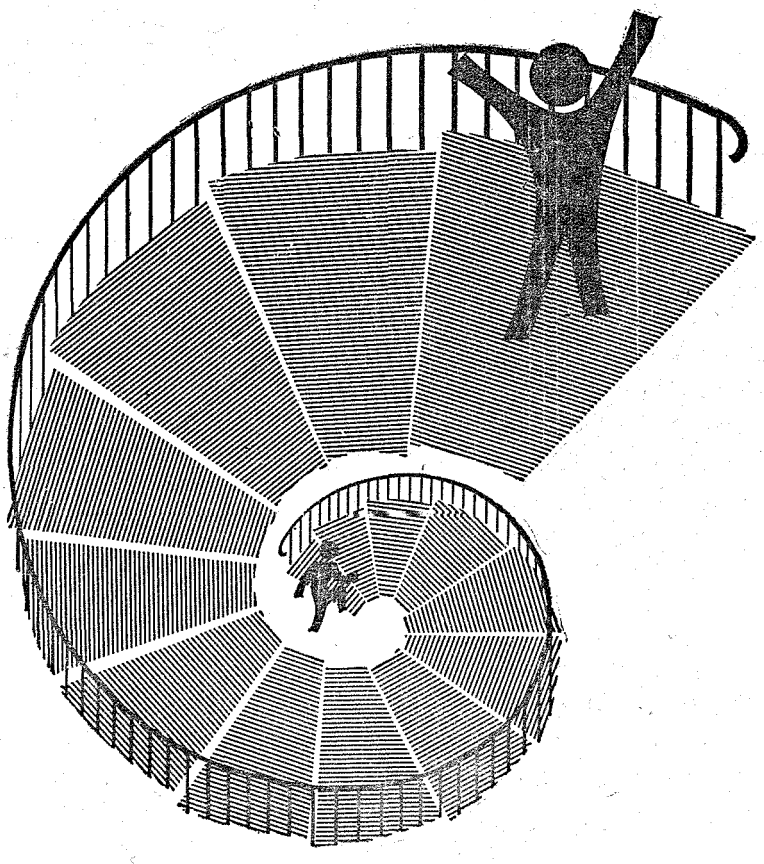

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EDITORIAL

During the last year, the M.M.S.A. has greatly extended its activities. The local clerkship possibilities have been increased, and now include vacancies for 15 foreign students during the three summer months, and two students per month during the other nine months. The Chest-Piece is once more being issued regularly, after a lapse of some years during which it was being issued at the rate of once in three years. Last August, a member of the M.M.S.A. council attended the 12th G.A. of I.F.M.S.A. at Oslo. The previous maltese delegate to attend such a conference was four years ago at Istanbul.

Later on this year, The M.M.S.A. is organising the Executive Board and Exchange Officers Meeting of I.F.M.S.A. in Malta. This is the first time in student history, that, such an international conference is being organised by maltese students in our country. The EB/EOM are being held between December 29th and January 7th next.

The Council and members of the M.M.S.A. would like to avail themselves of this opportunity, and thank the University Authorities; Prof. J. V. Zammit Maempel M.D., M.R.C.P. (Lond.), Dean of the Faculty of Medicine and Surgery; Prof. G. P. Xuereb, B.Sc., M.D., B.Sc. (Oxon.), D.C.P. (London), D. Phil (Oxon.); Marquis Scicluna LL.D. (Hon. Causa); and all others who have helped in any way to make this enterprise a success. The Council and members would furthermore like to extend their sincere welcome to those delegates who will be coming over to our island to attend this conference.

SCHOLARSHIPS, GRANTS, AND PRIZES

The recent donation of £10,000 by the Marquis Scicluna to the R.U.M., to help set up a scholarship scheme, was a great step forward towards the establishment of a national interest in the field of local education. However, before this, such public spirited people, as Mr. Charles de Giorgio who is a member of the R.U.M. Endowments Fund Committee, and Mr. George Borg Barthet, Ph.C., in the medical field; as well as Messrs Simonds Farsons Cick Ltd., and Shell Company (Malta) Ltd., had also set up an example of what can be done in establishing a scholarship scheme in our country.

Mr. Charles de Giorgio, besides having spontaneously founded the De Giorgio Scholarship of £350, established the De Giorgio Prize of £25 every other year in Therapeutics, and granted £500 towards the R.U.M. Medical Research Fund, has also secured for Medical students, several scholarships and prizes from the firms he represents. These include the awarding of the Lederle International Fellowship to Prof. W. Ganado in 1957, the establishment of the Novo Industri A/S Prize, the Roussel Prize, and the Vitamins (Export) Ltd. Prize, of £50, £25 and £20 respectively to be awarded every two years. Besides Messrs Novo Industri A/S have also

granted a scholarship in advanced diabetic research in Copenhagen to a maltese doctor; Messrs Vitamins (Export) Ltd. are also granting another scholarship of £350 *to a medical student; and Messrs Smith & Nephew Pharmaceuticals Limited have already contacted the university authorities, with a view of establishing another scholarship.*

In 1955, *the Pfizer Corporation of New York, in consultation with their local representative Mr. George Borg Barthet Ph.C., established the Pfizer Prize of* £600 *to be awarded to the top three medical students in the finals of each course. This Prize has so far been awarded in* 1955, 1958, *and* 1961.

The Boehringer Scholarship for two months in Germany for the advanced study of diabetes, was awarded earlier this year to Dr. J. L. Grech. This was made possible through the initiative of Mr. Gatt, the agent, Mr. George Saliba Ph.C., the local representative, and the B.M.A. (Malta Branch).

These individuals and firms through their work and philantropy have set up an example to the other local medical representatives. They have shown, how prepared the firms they represent are to help in most aspects of medical education. It is hoped, that this example they have set up will encourage other local medical representatives, and arouse in them a little enthusiasm, to help in establishing, more scholarships and prizes, for medical students.

Mr. G. R. Sturrock, Dr. E. Sammut, Prof. J. A. Manche' and Mr. C. de Giorgio (from Left to Right) on the Scholarship selection board at the Royal University, interviewing Miss Doris Genovese.

FREUD'S EXPERIMENTS WITH COCAINE

By Arthur George Mercieca

Sigmund Freud is generally known as the man who evolved the study of Psychopathology. His method of Psychoanalysis was directed towards the study of the individual's normal and abnormal mental reactions, so as to be able to get down to the basic cause behind each individual's trouble. But besides this contribution to Psychopathology, Freud also did much experimental work with Cocaine, and he very nearly discovered its properties as a Local Anaesthetic.

Freud as a young man was not greatly inclined towards medicine; in fact, after graduating he did not even bother to set up a private practice. But although at the start of his career he was so indifferent, two determining factors caused him to develop an urge to achieve success.

The first factor was Freud's sense of inferiority, and his urge to become important. He lived during a time when the Jews were constantly being humiliated, and made to feel conspicuous. As a young boy, Freud had faced many such humiliations, but perhaps, the one that remained most impressed in his mind was when Freud was walking with his father and a bully came up to them and insulted the older Freud. He could not retaliate. The bully knocked off his father's cap in the street. The old man quietly picked it up and walked away. Sigmund was too proud to give an outlet to these emotions. They remained repressed in him for most of his life, and it was such repressed emotions that instilled in him a strong desire to become a somebody.

The second, and probably the most forceful determining factor was his sudden urge towards financial security; his urgent need to make money. This financial problem came over Freud rather quickly, and the circumstances that led up to it, also led to Freud's important experiments with Cocaine.

One evening in April 1882, when Freud was still an unknown young doctor, he fell in love with a beautiful girl of 20, Martha Bernays. She was the daughter of a Jewish businessman. Sigmund used to send letters and roses to her daily. Some two months later, he decided that she also loved him and he decided to work in the General Hospital to prepare to set up a private practice. He wanted to achieve economic independence and marry her. But Martha's mother would not accept a son-in-law with no secure position, so she sent Martha to some relatives in a small town near Hamburg, to separate the two young people.

Freud was desperate, that he could not see her. He borrowed money to go to Wandsbek where she was staying. On his return, knowing that he could not see Martha for some time he again felt extremely desperate. He suffered from severe depressions. He was extremely jealous. In him developed a desperate desire to make an unusual discovery, to enable him to make money quickly, so that he would be eligible to marry Matha. Freud tried many experiments, and new ideas of treatment, but each time he failed, and this only added to his desperation.

Once whilst working in the Neurology department, he read an article 'Physiological effect and Importance of Cocaine' by Theodor Aschenbrandt. Freud, being on the lookout for something new, to win him fame and money, was once more inflamed by enthusiasm. He immediately wrote to the only drug firm which was

producing Cocaine at the time. The price per gram was impossibly high for Freud, yet he sent for a gram, hoping to pay for it later. When he received it he started to experiment on himself. On taking the first dose his depressions vanished; he felt that he was again capable of concentrating and working. The results of this early experiment made him feel that he was on the verge of a discovery. He was spurred on by a sudden excitement, and a new avidity for work. He looked up older reports on the drug. He found a paper stating that Cocaine was able to relieve Morphine addiction.

This paper reminded Freud of an old friend of his, who was an assistant at the Physiological Institute, where Freud himself had previously worked. Freud knew that Ernst von Fleischl had been a Morphine addict for some time, and so he suggested to him the use of Cocaine. This produced an excellent effect, which again stimulated Freud with new ideas. Fleischl, to whom money was no problem, supplied Freud with the Cocaine he needed for his experiments.

Once, during the course of his experiments, Freud discovered, that on taking Cocaine the pain of an inflamed gum was deadened. Freud noticed this effect, but he was so absorbed with the anti-addiction, anti-depressive and tonic effects of Cocaine, that he did not bother with its analgesic properties. However he did mention this property on several occasions. In a paper that he published, Freud mentioned the effects of cocaine to overcome depression and complaints caused by nervousness. He also mentioned its effect in augumenting physical and mental strength, and also stated that it was not habit forming. Before closing Freud also mentioned its properties to render the Mucous Membrane insensitive to pain, and that its analgesic properties may be developed some time in the future. Freud also suggested to Leopold von Königstein, a lecturer in Ophthalmology, that Cocaine may alleviate pain in certain eye diseases, such as Trachoma and Iritis.

At this time addiction to the drug started to be noticed. Freud himself never became a Cocaine addict, and this may have caused Freud to persist with his experiments. He still hoped to develop the anti-depression properties of Cocaine. Freud was going in the wrong direction. He was on the verge of a discovery, yet he ignored it.

A few days after Freud had noticed the analgesic properties of Cocaine, on the Mucous Membrane of the gums, he met two doctors, one of whom was Carl Koller. Koller's companion had toothache, Freud tricked a few drops of Cocaine on his gums and the pain was relieved. Koller, noticing this, worked on this property of Cocaine, and evolved its use as a Local Anaesthetic.

Although Freud was aware of the Analgesic properties of Cocaine he lacked interest in this aspect. His experiments were being done expeditiously and in one direction. Consequently Freud was discarding the opportunity of making the discovery that was to produce for Koller the fame and reward he was so desperate to obtain for himself.

References: Gardner Murphy, *Historical Introduction to Modern Psychology;* J. Thorwald, *Triumph of Surgery;* H. Sacks, *Freud, Master and Friend.*

INSUFFICIENCY OF THE PLACENTA

Salvino Muscat, B.Sc., M.D., M.R.C.O.G. Formerly Demonstrator in Obstetrics & Gynaecology, Royal University of Malta.

Studies on the human placenta present great difficulties. Despite these difficulties, research into its physiology has made great strides within recent years.

Wislocki and his collaborators were the first to employ successfully histochemical staining methods on the human placenta. The placental physiology of iron, glycogen, fat and proteins has been revealed through this technique. Study of the placenta by this method has shown that, short of infarct formation, there is a decided tendency to premature senility and that at thirty weeks it may have the chemical reactions of a placenta at term.

Louis Flexner and his colleagues are accredited the pioneers in the use of radioactive isotopes. These workers employed radioactive Isotope Na 24 and found that the permeability varies inversely with the number of Grosser-Mossman layers in the order — Epithelio-chorial, Syndesmo - chorial, Endothelial-chorial and Haemo-chorial (in humans). Flexner et alia thus showed that in women at term, 99.9% of Sodium reaching the foetal circulation is returned to the mother.

Studies of placental function in cases of hypertension complicating pregnancy and in pre-eclampsia were attempted by J. McClure Browne using radioactive Na. In these conditions, impairment of function of the placenta was found to be present as a result of diminution in the clearance rate of this tracer substance.

The human placenta, among other functions, secretes at least three hormones, namely chorionic gonadotrophin, oestrogen and progesterone. In pregnancy complicated by Diabetes mellitus, hormone imbalance is known to be present. Smith and Smith found a persistently low pregnanediol as well as a low oestrogen level in the serum and urine in cases of diabetic pregnancies, whereas the chorionic gonadotrophin showed a significant rise.

It is an accepted fact that several babies are lost in cases of diabetic pregnancies unless the obstetrician rescues the foetus prior to the spontaneous onset of labour at term. Although the placenta in diabetic pregnancies may be abnormally large, it is definitely insufficient for purposes of normal function. The Smiths, as well as White, advocate oestrogen/progesterone therapy throughout the pregnancy, while termination of the pregnancy at around the 36th or 37th week, either by a Surgical Induction or by a Caesarean Section, is practised by the majority of obstetricians.

In Essential Hypertension complicating pregnancy, the placenta may be the seat of widespread infarction, and this, in turn, leads to insufficiency of the placenta. The obstetric management consists of control of the essential hypertension, avoidance of superimposition of pre-eclampsia and termination of the pregnancy at a suitable time. Even in cases of uncomplicated essential hypertension, it is not desirable for the baby's sake to allow the pregnancy to go beyond term. The functional activity of the placenta may be so precarious that the life of the foetus may be put in serious jeopardy if the pregnancy is allowed to go beyond term.

A varying degree of insufficiency of the placenta may also be observed clinically in pre-eclampsia. In pregnancies complicated by pre-eclampsia and by chronic hypertension, the foetus, as a rule,

grows slowly and when born may be premature by weight. The placenta, on inspection, may be on the small side with scattered areas of infarction prominent on its surface. During labour in a few cases the foetal heart becomes suddenly inaudible during a contraction, and this clinical observation is more noticeable in cases of prolonged labour. The obstetric treatment is directed towards the prevention of eclampsia and the delivery of a live baby which is capable of survival. Failure to intervene by a surgical induction of labour and/or Caesarean Section at the appropriate time will not only have serious repercussions on the mother, but will also enhance greatly the risk of intra-uterine death of the foetus.

In the absence of any demonstrable cause, habitual death of the foetus in utero is sometimes ascribed to lack of proper functioning of the placenta. Some obstetricians claim that this condition is associated with hormone imbalance and in the management of these cases they prescribe increasing doses of oestrogen and progesterone throughout the pregnancy. But the overall important obstetric treatment — careful timing in the delivery of the foetus by section, prior to the risk of intra-uterine death — remains.

Within recent years the problem of "postmaturity" has received considerable attention. No hard and fast rules can be laid down although most obstetricians would feel at ease if an uncomplicated pregnancy were not allowed to proceed longer than two weeks beyond term. In cases of prolonged pregnancy, placental insufficiency has been blamed for the occasional loss of foetal life occurring just before the onset of labour or, more commonly, during the actual labour.

In cases of prolonged labour where the membranes have been ruptured for over 24 hours, encroachment of the placental site is known to occur. This encroachment leads to impairment of function of the placenta and has been observed clinically to produce intra-uterine death of the foetus. Very careful attention to the foetal heart-beats must be maintained, and measures to effect a quick delivery must be at hand if the foetus shows signs of going into distress.

CONCLUSION:

The human placenta is a very complex organ. Studies of its function in health and in disease are far from complete. The observations referred to in this paper have been made clinically from time to time and over a period of years.

In the absence of adequate knowledge, the obstetrician must be guided by his judgement and by the result achieved over the years.

I.F.M.S.A. NEWS

The EBM/EOM 1963/1964 is being held in Malta between December 29th 1963 and January 7th 1964. These meetings will be held at the Medical School, Pietà.
From The President (*IFMSA-News Vol. I No.* 1. *Oct.* 1963).

The Congo has recently been added to the list of the member countries of the I.F.M.S.A. Application for membership have also been received from Ceylon, Rhodesia and Nyasaland, and Uruguay.
From The General Segretariat (*IFMSA-News Vol. I No.* 1. *Oct.* 1963).

Applications for membership to the IFMSA have also been received from the following countries: Peru, Senegal, UAR, and Lebanon.

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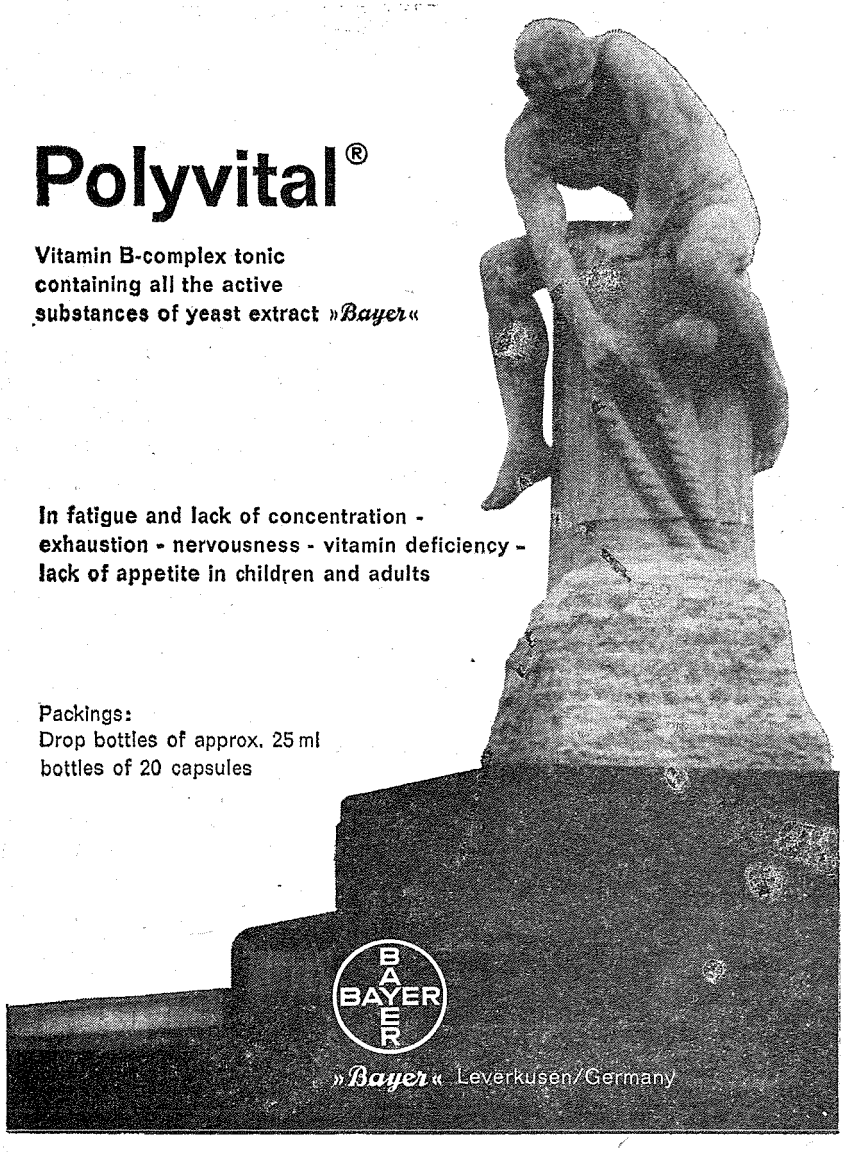

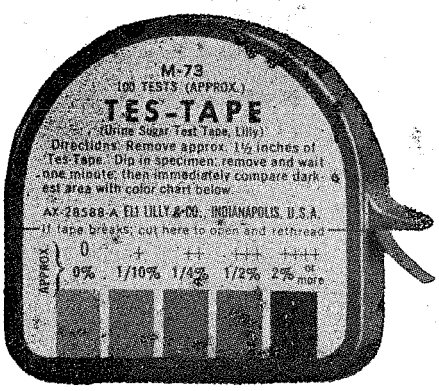

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INDIANOPOLIS 6

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The History of the School of Anatomy in Malta (1674 - 1800)

by J. Leslie Pace, M.D., Lecturer, Dept.of Anatomy, Royal University of Malta.

Anatomy became a recognised discipline under the Great Alexandrians (300-250 BC), of whom Herophilus (300BC) is often considered as the Father of Anatomy. Galen (130-200AD) published numerous anatomical works which, for a long time, were used in teaching Anatomy. Teaching by dissection began with Mondino (c. 1276-1326). in the early 14th century. Modern Anatomy however, orginated in the mid-16th century when dissection became somewhat more common; Vesalius (1514-1564) is often looked upon as the Father of Modern Anatomy. Eustachius was followed by Fabricius, one of the greatest teachers of Anatomy.

Though we cannot claim that the School of Anatomy in Malta is as old as any of the great continental schools of Bologna (end of 13th century), Montpellier (end 14th), Padua or Paris (end 15th) or London (mid-16th), yet it was established only just after that of Basel, Leyden and Copenhagen (beginning of 17th). It is not generally realised that as early as 1674,* G.M. Fra Nicolas Cottoner established the first School of Anatomy (and Surgery) in Malta, at a time when many other Universities abroad still had no regular teaching of Anatomy.

The first phase in the history of anatomical teaching in Malta is from 1674 to 1798, a period of 124 years, during which great progress was made, with occasional setbacks, until the School of Anatomy in Malta came to acquire great renown throughout the principal cities of Europe. From 1798 to 1800, Malta was under the French and during this time the School of Anatomy was supressed. With the coming of the British in 1800, teaching of Anatomy was restarted and has since continued to be taught on the British system; this period of 160 years constitutes the second phase.

This historical survey of the first phase in the history of the School of Anatomy in Malta purports to throw some light on the activities going on in this School as well as on the Anatomists who occupied the Chair during the period.

During the first 50 years (1674-1725), not much progress was made in the teaching of Anatomy. According to von Zwehl, the course in Anatomy at this time was a regular, albiet not an extensive, one. Anatomy lessons were held every Thursday throughout the year and were compulsory for 'i pratici e i barberotti' of the hospital and of the galleons as well as for all the students of Surgery. In 1687 the School of Anatomy became annexed to the Hospital of the Order (Sacra Infermeria). During this period the Chair of Anatomy was first occupied by Dr. Giuseppe Zammit, of whom we know very little, and then by Dr. Giuseppe Farrugia during whose time the teaching of Anatomy fell into headlong decay, with no dissections and no demonstrations on the parts of the animal body being carried out.

The next 25 years (1725-1754) mark the 'Henin' period during which Anatomical teaching in Malta was set on a firm basis. This period is so named after Dr. Gabriele Henin who occupied the Chair during this period and who can reasonably be regarded as the Father of Anatomy in Malta. Henin was primarily a surgeon

— the Senior Surgeon of the Sacra Infermeria — but he was also the Prosector and First Teacher in the School of Anatomy. The Council of the Order sent him to Florence, at their own expense, to study Anatomy at the Hospital of Santa Maria Nuova. He reurned to Malta in 1725 and G.M. Manoel de Vilhena thereupon appointed him Prosector at the School of Anatomy. For 29 years, Henin lectured, in Italian, on Anatomy (besides on Physiology and Pathology), carried out classes of dissection and demonstrations on the human body in public and performed all the postmortem examinations, besides acting as surgeon to the Hospital. His salary was 12 scudi (about £1) monthly apart from 1 rotolo of meat and 2 misure of wine daily for which he fought vehemently but all to no avail when they were withdrawn!

Henin became gravely ill in 1753 and died in October 1754. His greatest anatomical publication was 'Observatio Chirurgico-anatomica in Nosocomio S. Joanni Hyerosolymitano' (1748). A portrait of this celebrated anatomist, as well as one of his successor M.A. Grima, is found in the office of the Medical Superintendent, St. Luke Hospital.

The teaching of Anatomy in the next 20 years (1754-1763) reached rather low levels, as M.A. Grima in the introduction to his "Instituzioni d'Anatomia" points out. The Chair of Anatomy was occupied, for a few months only in 1754, by Enrico Maggi, who was succeeded by Vincenzo Galli (1754-1763). Enrico Maggi suffered an apopleptic attack and owing to his ill-health had to give up teaching after a short time. In 1754, the Inquisitor in Malta, Monsignor Gregorio dei duchi di Salvati, brought with him to Malta his private medical attendant Vincenzo Galli who had been a pupil with Grima at Florence. During his stay in Malta, Galli lectured on Anatomy with great success. It was about this time that we hear of a Maltese surgeon abroad who was making a name for himself as an anatomist; Michel Angiolo Magri, one of the pupils of Henin, became a famous dissector in the Hospital of Santa Maria in Florence about 1740 and was appointed Master of Anatomy at the Hospital of Messina in 1748. He was particularly renowned for his angiological preparations in coloured wax which compared favourably with those of the famous Ruysch.

The years 1763 to 1797 marked great progress in the school of Anatomy in Malta. This School, which had been left abandoned at the time of Maggi, was reorganised and revived during this period by Michelangiolo Grima.

There is evidence that the Grand Masters during this period showed great interest in the School of Anatomy. A report to the Grand Master from the Commission of the Treasury in 1766 mentions a Swiss Military surgeon, Antnony Mayer, who made a present to the Order of '...19 well-made anatomical models in coloured wax and a model of the human body of the same material. These models will help the study of Anatomy during the hot months when dissection is not possible owing to the dangers ensuing on operating on the dead body in this climate and at that season.' Further evidence is shown by the first 'Constituzione per i nuovi studi dell'Universita' of 1771 with its provisions for the study of Medicine and Surgery. The sections on Anatomy require:

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II. Ogni Sabato poi ne mesi d'Inverno dovra condurre i suoi scolari allo spedale grande e far loro vedere publicamente le preparazione anatomiche con ragione egli e far ragionar da piu esperti de suoi allievi sopra di essi...'

Michelangiolo Grima was a pupil of Henin. He studied Anatomy at the Hospital of Santa Maria Nuova in Florence under Antonio Cocchi and Angiolo Nannoni, two anatomists of repute. He was then sent to France, at the expense of the Order, to complete his anatomical studies. With his return to the Island, Grima was appointed Anatomist (besides Chief Surgeon) in 1763. For the next 10 years he worked with enthusiasm reorganising the School of Anatomy on the methods of Paris and Florence, and during the 34 years he served the Order as surgeon and anatomist he worked indefatigably for the reestablishment of the Medical School and of Anatomical teaching in Malta.

Grima, apart from lecturing in Anatomy, gave public demonstrations on the dead body and carried out postmortem examinations on those who died of obscure diseases. Before Maggi's death he received no salary, though he had already started lecturing; but by 1771 we find that he was receiving 60 scudi annually and by 1778 120 scudi (besides his monthly salary of 29 scudi).

Grima was rather unpopular with Grand Master Ximenes, who succeded Pinto in 1773, in fact, just a month after the accession of this Grand Master, Grima was replaced by a Dr. Lucano; only 6 days passed however before Grima was reinstated in the Chair of Anatomy.

Grima's chief publications of Anatomical interest were:—

1. Instituzioni d'Anatomia (Venezia 1781). This consists of a collection of his lectures given to the students at the Sacro Spedale of the Order. The book was in 2 parts; the first part was published in 1781 but the second part, which was finished in 1784 and called 'Trattato della Sarcologia, Angiologia e Neurologia', was never published and is kept in manuscript form at the Malta Public Library.

2. Sulla Sensibilità dei tendini (Paris 1760). This thesis was read in 1756 to the Academia degli Apatisti in Italian and translated into French. The thesis was directed against the teaching of Haller and includes personal experiences of Grima.

3. Due Relazioni medico anatomiche (Malta 1764). Grima describes in detail the postemortems done on the cadavers of 2 noble Florentine ladies.

The Practice of Dissection in Malta.

Dissection probably started at Bologna between 1266 and 1275. The first reference to a postmortem examination was in 1286 by Salimbene and the first full description in 1302 by Bartolomeo da Varignana. In the 13th century, by order of Frederick II, all surgical students in the schools of Naples and Sicily had to dissect a cadaver at least once every 5 years but in spite of this, Anatomy was still taught by the reading of Galenic scripts without actual dissection being carried out. Mondino of Bologna was the first to dissect in person in public in 1316. In the mid-14th century dissection was still very rare and we find that the great Vesalius gave only a limited number of lesson-demonstrations on the cadaver. In the 15th century dissections were being performed in Bologna and Padua but were still few and far between. They became somewhat more common in the 16th century. In the 17th and first half of the 18th century dissection was still carried out with difficulty and subjects for dissection were difficult to obtain. According to Fedeli, in none of the Italian hospitals, not even at Rome and at Santa Maria Nuova in Florence, where the study of Anatomy had flourished so much, was dissection done with ease and liberty. In England, it was only in 1746 that the first regular school of dissection was established by William Hunter in London and, even then, mate-

rial for dissection was difficult to come by.

In spite of all this, dissection of the human body in Malta started early in comparison to other great hospitals abroad. With the establishment of the School of Anatomy in 1674, dissection was not yet allowed and only theoretical courses in Anatomy were carried out. Dissection in Malta started in 1723, during the reign of Grand Master de Vilhena, who succeded Marc'Antonio Zondadari to the Magistero dell'Ordine. To facilitate dissection it was decided that the bodies of all the professed Knights, including the Knights of the Grand Cross, and of all those who died in Hospital were to be dissected by the Director of Anatomy.

Dissection of human bodies was carried out in the Anatomical theatre. The first anatomical theatre was built by Grand Master Fra Nicolas Cottoner adjoining the Sacra Infermeria at Valletta in 1676. In 1716, another theatre was built, probably on the same site. Up to 1720, the theatre was not used for actual dissection but was probably used as lecture hall. In 1794, the Prior of Catalonia, Bali Fra Nicolo Abri-Descallar instituted a foundation of 2500 scudi for the purpose of erecting an anatomical amphithetre near the Order's Cemetery and to provide all the necessary instruments for dissection (as well as a professor to give lessons in practical dissection). The site of this amphitheatre was practically similar to that of its predecessor. It is of interest to note that the present Department of Anatomy at the Evans Laboratories, situated near what is nowadays called the Knightshall (the Sacra Infermeria of the Order), is not very far away from the original anatomical theatre.

Before being dissected, bodies had to be left, by law, for 24 hours after death in the mortuary. Here straps were fastened to the hands and feet of the cadaver so that the slightest motion would set a bell ringing, in this way precautions were taken to prevent the dissection of someone who was in fact not yet really dead.

Adjoining the Anatomical theatre was the Cemetery, of which nothing remains today, as well as the Chapel of Bones, which today is in ruins but part of which still remain included in the boundary wall of the Evans Laboratories.

REFERENCES.

1. Medical work of the Knights Hospitallers of St. John of Jerusalem. E. Erskine Hume Baltimore 1940.
2. Malta and the Knights Hospitallers, Bedford.
3. L'Ordine di Malta e le scienze Mediche. C. Fedeli Pisa 1913.
4 L'Universita di Malta; Origine e svillupo. T. Zammit Malta 1913.
5. The Medical School of Malta, T. Zammit. La Rivista Medica, Bolletino della Camera Medica di Malta July 1922.
6. Michel'Angelo Grima Chirurgo Maltese del settecento. J. Cassar Pullicino 1949.
7. M.A. Grima Article by Dr. N. Zammit. L'Arte (rivista) 1865
8. Instituzioni d'Anatomia M.A. Grima Venezia 1781.
9. Observatio Chirurgo-anatomica in Nosocomia S. Joannis Hyerosolymitano Anno bisextile 1748, 8°, G. Henin Messina 1748.
10. Report on the Select Committee on Anatomy 1828.
11. A short History of Anatomy and Physiology from the Greeks to Harvey C. Singer 1957.
12. Cenni Storici della Scuola Medica nei tempi dell'Ordine G. Gulia 1886.
13. Storia della Societa' Medica d'Incorraggiamento, Malta 1845.
14. Archivio per gli studi storici della medicina e delle Scienze Naturali.
16. Historia della Sacra Religione Militare di San Giovanni Gerosolimitano B. Dal Pozzo Venice 1715.

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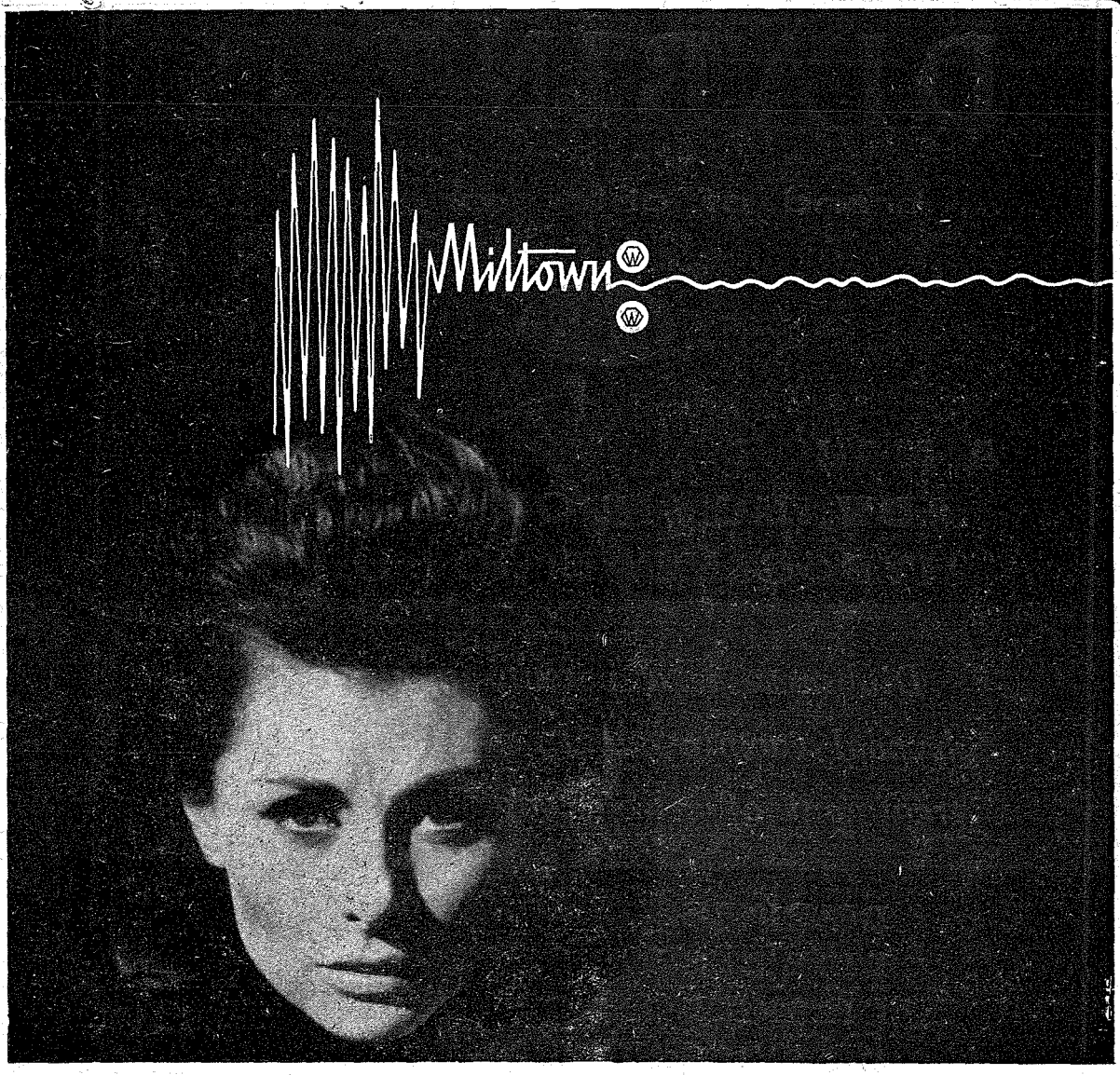
* 19th December 1676 according to documents quoted by Dr. P. Cassar in an article in Scientia (July-September 1958).



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A Clinical Clerkship In Neurosurgery

by Norman Griscti Soler

At the entrance to the Black Forest there is Freiburg im Breisgau, a town of 1500,000 people with a strong student flavour. It is a town where students write their dissertation during the week and barter their blood for 30 marks a pint during the weekend; where students learn their practical orthopaedics on the mountains and suffer from Freiburg's disease, a hangover, when on the plain.

Aschoff, Hoffmann and Jung are a few of the names that have made Freiburg famous.

Neurosurgery is the speciality we chose for our clinical clerkship in Freiburg. The director of the neuosurgical clinic is Professor Reichert who spelialises in stereotaxy operations for Parkinsonism. The clinic has a full complement of medical staff for its male and female stations and operating theatres but qualified anesthetists are very hard to come by. The atmosphere is relaxed and hopeful and an attempt is made to build the patients' morale on these lines. Patients are befriended and encouraged and if necessary even bullied into helping themselves.

Work starts in the clinic at 8 a.m. when the professor meets all the other members of the staff in the conference hall for the X-rays session. The X-rays are projected on to the screen and the particular houseman to whom the case belongs is expected to give an offhand account of the patient's condition. The X-rays are then discussed and points of interest brought out. When the session is over ward rounds are taken either by the registrars or once a week by the professor himself with the whole house in attendance. Cases vary from slipped disc to epilepsy, from Parkinsonism to intracranial tumour. There is a continuous turnover of patients and new cases make an appearance each week after prior examination at the polyclinic where their case is diagnosed as neurological. On arrival a thorough neurological examination is carried out followed by the necessary investigations. These include X-rays, ordinary and special views for the internal auditory meati, optic foramina and base of the skull, lumber punctures, ventriculograms either by direct ventricular tap or by the lumbar route (encephalogram), angiograms by the percutaneous method and electroencephalograms. For the encephalograms after withdrawal of some C.S.F. helium is injected in preference to air. Helium is chosen because it is maintained at body temperature before injection, whereas air has a different temperature and its expansion or injection causes pain. The ventriculogram by direct tap is resorted to when signs of increased pressure exist a) because of the real danger of coning if lumbar puncture is carried out b) because encephalography fails to fill the lateral ventricles when the intracranial pressure is elevated. The procedure is carried out in the operating theatre under local anaesthesia so that the operator may know from the patient's reactions when he has injected enough helium into the lateral ventricles after preliminary withdrawal of C.S.F. The process of puncturing the lateral ventricles, by means of a ventricular canula introduced through a trephine opening, is often one of trial and error. In one particular case of a girl 21 years old no fluid could be drawn from one of the ventricles after several attempts had been made. Later it was found that the ventricle on that side was completely

obliterated by tumour. Once helium has been introduced by either method the first films are taken with the patient lying flat on his back for in this position both anterior horns are usually filled. The patient is then turned onto his abdomen and films exposed with the right and left sides of the head and then with the face down against the film.

Lumbar punctures are very common and have diverse uses but never to reduce intracranial pressure since coning is recognised as an immediate danger. The needle is introduced through the interspinous space flush with the iliac crests but very often due to the various configurations of the lumbar vertebrae it is easier to go in laterally through a point 2 cms from the midline rather than through the midline itself. Lumbar puncture is sometimes used to produce an increased flow of C.S.F. through irritation caused by injection of air. This has its value in conditions of low C.S.F. pressure (e.g. postoperatively) and in very severe meningitis. In the latter condition air or better still O2 irritates and produces drainage and at the same time is hated by microbes. Moreover the optimum concentration of antibiotic in the C.S.F. is needed and research work undertaken in Freiburg has shown that this can be best achieved by combined therapy with papaverine and chloramphenicol.

The theatres are alive with work which is well distributed. In the case of an intracranial tumour the professor or registrar fisrt marks out the site and size of the bone flap to be raised. The two assistants then proceed with the scalp incisions, the drilling of burr holes and the sawing prior to elevating the bone flap by cracking it at the base. Once the brain is exposed the chief surgeon arrives on the scene. The first essential is the localisation of the growth. Sometimes this is plainly visible on the surface (e.g. meningioma) but at other times the surgeon is guided by clinical features and X'rays in his tapping with a ventricular canula which may show changes in resistance of underlying tissue or may evacuate flued from a cyst (e.g. astrocytoma). Next he procceds to remove the tumour. The acoustic neuroma is one of the tumours extending the surgeon most and this is often reflected in the long and difficult convalescence period. At the end of most of the intracranial operations the bone flap is not replaced the rationale being that reactionary secondary oedema may cause a considerable rise in intracranial pressure. Another school of thought holds that this procedure is unphysiological and that it may give a new lease of life to tumours, as was the case with an inoperable glioblastoma which soon started fungating onde the restraining influence of the bone was removed. Many tumours are tackled but the glioblastoma is in a class of its own. The treatment offered it is cobalt implantation.

Interesting operations carried out include amongst others division of the sensory root of the trigeminal nerve through a temporal approach in tic douloureux, a cordotomy at the level of C^2, C^3 for the relief of intractable pain due to carcinoma cervix, enucleation of a neuroma from the sciatic nerve in Von Recklingheusen's disease and division of the spinal root of the accessory nerve as well as the cervical nerve supply to the short neck muscles in a case of torticollis spasticus. Experience tells that the latter patient will probably present later on with fully blown extra pyramidal syptoms, because the corpus striatum is implicated. Operations of ventriculo atrial anastomoses are carried out in hydrocephalus using Spitz Holter or Pudenz valves which allow the ventricular fiuid to pass downward under relatively low pressures but do not

permit blood to enter the ventricular system. The method involves use of the cardiac silicone rubber catheter filled with saline solution as a unipolar E.C.G. lead. Tracings are made from this lead as the catheter is advanced down the internal jugular vein until accurate placement in midatrium is achieved. The tubing is then anchored to the juugular vein.

The Freiburg neurosurgical clinic is best known for its prowess in Parkinsonism. Before operation patients are assessed as regards what hope stereotaxy holds for them, the cases ranging from those with predominant rigidity to those with predominant tremor. Some patients show the phenomenon of 'katatonic pillow' in which when they lie recumbent they keep their head raised above the pillow on a cushion of air and yet do not tire in this position. For operation precision X-rays are required because from them exact measurements are taken to set the stereotactic apparatus by which small focal lesions are made in the globus pallidus for rigidity, and in the thalamus for tremor. These procedures produce crossed abolition of the motor disturbances of Parkinsonism. Due to the proximity of the internal capsule complications of the operation include facial weakness, hemiparesis and hemiplegia. Tremor is more difficult to control then rigidity and if the lesion is too large psychic changes follow. During the procedure the patient is conscious, local anaesthesia being only used for the purpose of burring the holes through which the electrodes will pass. When the electrodes are in position the patient is asked to perform certain acts such as pronating and supinating the hands, placing his extended upper limbs straight in front of him and articulating certain words, and rigidity is also tested for. The degree of tremor and rigidity give the cue to the experienced operator as to the currents he is to use and the effect they are having. Results vary but some wonderful cures are effected. After operation the patient being able to swing his arms and write normally again, regaining facial mobility and losing the festinating gait.

The steady influx of foreign patients reflects the eminence of Professor Reichert and the Freiburg neurosurgical clinic.

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Growth of Maltese babies in the first year of life.

Dr. E. A. Cachia, M.B., B.Ch. D.C.H., In conjunction with *M.W. Grant*

Nature of the material.

The data available for analysis consisted of weight records for 409 infants (201 male and 208 female) attending local welfare clinics, also available were

Reference number
Sex
Place in family
Age (at time of first attendance)
Weight (in 1st month, 2nd mth, 3rd... 12th mth.)

Entries under the heading '4th mth" were for infants more than three months old but not yet four months and that the mean for the group would therefore be $3\frac{1}{2}$ months. Similarly for all other groups except the first. As very few babies were brought to the clinic in the first two weeks of life the mean age of the "1st month" group was naturally nearer the whole month. It was possible to calculate the true "mean age" of the "first month" group as age at time of first attendance had ben noted: this age was found to be 24 days.

The facilities available at the clinics preclude the undressing of babies as a matter of routine and that they were therefore weighed clothed, the mother being asked to bring with her to the clinic a bundle of clothes similar to those the baby was wearing. This bundle was also weighed and its weight deducted from the clothed weight of the baby, the clinic nurse then entering this difference between the two weights on the child's record card. Such a method of arriving at the baby's weight is bound to give rise to more errors than would occur if the weight could be obtained direct but it is not felt that it necessarily invalidates group averages as the total number of records obtained (3257) was reasonably large; moreover, all individual records were graphed and nearly all gave remarkably smooth curves.

Only 25 babies (eleven girls and fourteen boys) were brought for weighing every month throughout the first year of life. The others were brought only at irregular intervals but scrutiniy of individual records gave no evidence of a return after an absence of two or three months being in any way associated with any failure to gain weight in the interim.

TABLE 1.

Meanweight for age, month by month. (Maltese Babies)

Age group.	*Number of records*		*Mean weight (lbs.)*	
Month.	Male.	Female.	Male.	Female.
1st.	125	127	8.50	7.94
2nd	193	183	10.18	9.71
3rd	173	192	11.84	11.20
4th	172	179	13.27	12.48
5th	176	177	14.63	13.98
6th	154	158	15.69	14.89
7th	140	143	16.83	15.95
8th	129	118	17.60	16.76
9th	121	119	18.57	17.39
10th	98	92	19.33	18.21
11th	72	77	19.90	18.98
12th	67	72	20.97	20.61

Overall average growth curves

The first analysis undertaken was a straightforward calculation of the mean weight of all male infants and all female infants on the basis of age at one month intervals. The findings are set out in Table 1 and charted in Figure 1, where they compared with London averages. The chart shows clearly that Maltese babies and London babies are very similar in weight in the first two to three months of life but that, after that, the London babies gain weight more rapidly than their Maltese counterparts.

TABLE 2.

grouping by position in family.

Position in family.	*Number in group.*		
	Boys.	*Gilrs.*	*Total.*
1st child	65	66	131
2nd ,,	31	41	72
3rd ,,	27	13	40
4th ,,	20	22	42
5th ,,	14	21	35
6th ,,	6	13	19
7th ,,	7	6	13
8th ,,	11	7	18
9th ,,	6	7	13
10th ,,	4	3	7
11th ,,	4	3	7
12th ,,	—	4	4
13th ,,	—	1	1
14th ,,	1	—	1
15th ,,	1	—	1
16th ,,	2	—	2
22nd ,,	—	1	1
Unspecified	2	—	2

Effect of position in family

Maltese families tend to be larger than London ones and although various workers have reported that birth weight increases with parity we know of no observations which show whether the greater weight of the later children at birth is maintained throughout their development. It is conceivable that the poverty so often associated with large families might so restrict their food supply that their initial advantage would soon be lost. Table 2 groups the children in the present series according to position in family.

It is unfortunate that no birth weights were available. It was, however, decided to test the relationship betwen weight in the third, sixth and ninth month of life and the child's place in the family. The numbers in the groups were small and the range in weight was considerable but the figures suggested a tendency for the weight at $2\frac{1}{2}$ months, $5\frac{1}{2}$ months, and $8\frac{1}{2}$ months, to be a little less in the later children; certainly they were not heavier.

TABLE 3.

Comparison of overweight and underweight groups.

	Male.		*Female.*	
	heavy.	light.	heavy	light.
Number in Group	17	22	13	22
Weight (lbs) at $2\frac{1}{2}$months	13.49	10.42	13.09	9.03
Weight (lbs) at $8\frac{1}{2}$months.	22.73	14.97	21.10	13.57

Comparison of over-weight and under-weight sub-groups

One hundred and twenty-one male infants were weighed in their ninth month and gave a mean weight of 18.57 pounds. Twenty-one of these children weighed over 21 pounds and twenty-nine weighed less than 17 pounds; of the heavy weights, seventeen had also been weighed in their third month and of the underweight children, twenty-two had also been weighed at this earlier age. It was found that the group which weighed most at $8\frac{1}{2}$ months had already been weighing more at $2\frac{1}{2}$ months of age but that, whereas they maintained roughly the same position relative to the London line, the

underweight group fell progressively further behind.

Analysis of the weights for the female babies showed the same phenomenon. The pertinent figures are set out in table 3 and shown graphically in figure 2.

It is clear that the Malta growth curve is deflected downwards by the behaviour of this underweight group and it was decided to investigate the nature of their growth in more detail. Typical individual growth curves from children in this group are shown in Figure 3 Nos. 34, 68, 203, 246). They indicate long periods when growth seems to be almost at a complete standstill, and the child merely holding what it had attained in the first three or four months of life. This is what happens experimentally when test animals are kept on minimal rations and one must ask whether these Maltese babies were also getting only enough food for maintenanse and not enough to permit their bodies to develop normally.

It seems unlikely that this growth retardation is due to disease, unless a chronic low-grade infection could produce this effect without calling attention to itself in any other way. A sharper infection, or a bout of diarrhoea, may cause temporary loss of weight but this is usually rapidly regained and the previous growth pattern resumed (this is illustrated by the curves for Nos. 51 and 249 in figure 3).

The possibility that these growth plateaus might indicate cases of hypercalcaemia must also be considered, as high dosage with Vitamin D in one form or another has been very popular in Malta in recent years; even without the use of additional concentrated sources of this vitamin, it appears that hypercalcaemia of which the only outward sign may be a "failure to thrive" — can arise from prolonged use of irradiated, or vitamin D enriched, dried milk or other infant foods.

Certainly children exhibiting a tendency towards this plateau type of growth require detailed investigation. An assessment needs to be made of their average dietary intake and it would be very valuable if data could be obtained about their growth in length which might continue despite the failure to gain weight. Such a growth pattern may give rise to abnormal composition of body tissues.

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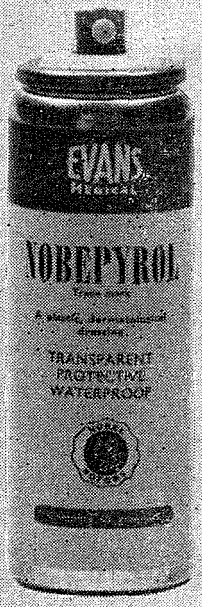

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Rountree P.M., Harrington M., Loewenthal J. and Gye R. (1960). Lancet, 2, 1.

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ISOTOPES IN MEDICINE

by Anthony Jaccarini B.Sc., B.Pharm., M.D., M.A. (Oxon.).

Lecturer, Department of Chemistry, Royal University of Malta.

Isotopes have an established place in medical research, diagnosis and therapeutics. The understanding of complex problems connected with intermediary metabolism and metabolic products in health and in disease has been, in many ways, bound up with the application of tracer techniques, dilution analysis and kinetic studies involving isotopes whilst irradiation of unhealthy tissue by radioactive isotopes has afforded a major line of treatment in many forms of new growth.

What are Isotopes

The atomic nucleus is built up of particles of unit mass (nucleons); some of these are positively charged (protons) and others are uncharged (neutrons). The number of protons, which is equal to that of electrons of negligible mass in the surrounding negative charge-cloud, is known as the *atomic number* and characterises a particular chemical element. Carbon with six protons has an atomic number of six; similarly cobalt with twenty seven protons is distinguished from any other element by its atomic number twenty seven.

Variation in the Number of Neutrons

The number of neutrons is in no way a constant characteristic of an element. This variation gives rise to atoms of the same element possessing different masses since each extra neutron carries with it one additional mass unit. These different types of atoms are referred to as isotopes. Every element exists in nature as a mixture of isotopes. Oxygen, for example, has three known isotopes:

^{16}O	(read oxygen sixteen) has 8 protons and 8 neutrons,
^{17}O	has 8 protons and 9 neutrons.
^{18}O	has 8 protons and 10 neutrons.

Radioactive Isotopes

Some combinations of protons and neutrons are unstable. Spontaneous nuclear changes involving emission of radiation reflect this and these changes take place so that a stable nuclear configuration is eventually attained. Three types of radiation are usually described.

1. *Alpha-emission* or high-speed emission of two protons and two neutrons (the equivalent of a stable helium nucleus) is associated with a decrease in atomic number of two units.

2. *Beta-emission* of an electron of *nuclear origin* or of a positron (a positively charged electron) likewise brings about a unit change in atomic number. These two types of radiation are accompanied by atomic transmutation.

3. The third type or *Gamma-radiation* is a penetrating electromagnetic radiation consisting of waves of very high frequency (i.e. smaller in wavelength than X-rays).

Nuclear bombardment by alpha-particles, protons, deuterons, neutrons and high energy gamma rays in cyclotrons produces isotopes with unstable unclear configurations. Most of the commercially available radioactive isotopes (for example from the Radiochemical Centre, Amersham, Bucks, England) are *artificially* produced in nuclear reactors.

Detection of Radioactivity

Radioactivity produces a number of effects in the medium in which it is occuring. Most important is the ionisation (or the stripping of the outer electrons) of the atoms of the medium. Instruments such as the Geiger-Muller, proportional and scintillation counters, and ionisation chambers are available and they are capable of counting or automatically recording the number of these secondary ionisations and hence afford a means of determining the 'activity' of any radioactive isotope.

Period of Half-Life

The time taken for half the radioactive atoms of an isotope to decay is called its half-life and is characteristic of the isotope. The rate of radioactive decay depends on the concentration of unchanged isotope present. The rate equation

$$\frac{dN}{dt} = -\lambda N$$

expresses this concisely. (dN/dt is the instantaneous rate of change or 'activity' of the specimen, λ is a proportionality constant known as the decay constant, and N is the number of unchanged nuclei at time t). The equation can be solved:

$$t = \frac{1}{\lambda} \log_e \frac{N}{No}$$

where No is the initial number of nuclei. When the ratio $N/No = 0.5$, t is known as the time of half-life, $t_{\frac{1}{2}}$, and becomes equal to $1/\lambda \log_e 2$. This means that t, is independent of the initial concentration of nuclei. ^{131}I with a half-life of 8 days or ^{24}Na with a half-life of fifteen hours, both isotopes of short life can be introduced into the animal organism without fear that their activity will persist beyond the time when harmful secondary effects can take place.

The standard used for measuring the activity of an isotope is the *curie* which is the activity of 1 g. of radium for which $dN/dt = 226$ and $t_{\frac{1}{2}} = 1622$ years. It represents 3.7×10^{10} disintegrations per second. A more useful unit is the millicurie.

Stable Isotopes

It must be borne in mind, however, that most combinations of protons and neutrons as found in nature are stable and remain so indefinitely. Such nuclei are not easily detectable (except by mass spectrography). In certain instances, where appreciable mass differences obtain, detection is possible. The nucleus of hydrogen, in particular, consists of a single proton without any accompanying neutrons. Deuterium, D, is an isotope of hydrogen and since its nucleus is made up of a proton and a neutron, it is twice as heavy as hydrogen. D_2O concentration in ordinary water can be estimated by specific gravity determinations and thus deuterium can be incorporated in any compound containing hydrogen and the labelled compound may be detected provided it may subsequently be made to react to give D_2O. Tritium, another isotope of hydrogen has 1 proton and 2 neutrons but is also a gamma emitter.

Isotopes in Medical Diagnosis and Research

The use of isotopes in this ever-widening field depends essentially on the fact that chemical behaviour is a function of the atomic number and not of the atomic mass. Small amounts of detectable isotopes do not in any way interfere with the metabolic pathways of food and substances with specific pharmacological properties introduced into the living organism. The particular element or compound so

introduced is thus labelled and its history within the organism can be followed at times with bewildering precision. While tracer techniques allow complex paths to be followed, the rate of a particular step in a metabolic sequence can in many cases be studied and a lot of insight into the actual chemical mechanism can be obtained. Finally, the extent to which a labelled compound, introduced into the organism at a known concentration, is diluted on recovery, gives an estimate of the amount of the original unlabelled substance present, a technique widely used in chemical analysis in industry known as isotopic dilution analysis.

Intermediary Metabolism

A simple example is the biosynthesis of ascorbic acid from glucose or galactose. Glucose, uniformly labelled with ^{14}C, is found to produce labelled acid. Another example is concerned with the proof that tissue proteins are in a continuous state of flux. Experiments with amino-acids labelled with ^{15}N show that the nitrogen is quickly incorporated in the tissue proteins — a process requiring the rapid formation and breakdown of peptide bonds.

Iron Metabolism

The radioactive isotope ^{59}Fe, with a half-life of 45 days, has been used to determine the average life of the red cell. It has been possible to follow the movement of the ingested iron from its initial high concentration in the bone marrow, through its appearance in the systemic circulation and its final accumulation in the spleen. In this way the life of the red blood corpuscle has been found to be 16 weeks. Moreover it has been found that the iron can be used over and over again. This means that iron depletion occurs slowly in health. It is thus possible to study the chemistry of iron storage disease, where, for example, it has been shown that the brown paches over the skin of the lower limbs in elderly persons are due to the deposition of ferrous iron.

Iron and the Thyroid Gland

The application of isotopic techniques in this connection is generally familiar. ^{131}I, the isotope commonly employed, is convienently produced by the irradiation of tellurium in the nuclear reactor. A small dose of the isotope is found to be concentrated over the thyroid reaching its maximal activity within two days after which renal exeretion starts. Urinary excretion rates measure thyroid function and are normally useful as a preliminary test in out-patient practice. More elaborate tests give (a) thyroid activity/ time and (b) blood activity / time curves and (c) thyroid activity / thigh activity ratios which can be correlated with thyroid dysfunction. It is also possible to outline the borders of the thyroid and functional thyroid carcinoma and its metastases can be accurately diagnosed and located.

Measurement of Blood Volume

Dilution analysis with ^{32}P enables the blood volume to be estimated. Blood is withdrawn from the patient and labelled with radio-phosphorus by letting it stand in a solution of this isotope. A known quantity of this blood is re-injected so as to mix with the circulating blood. The radioactivity in a second sample of withdrawn blood enables the extent of dilution and hence the blood volume to be determined. By applying tourniquets blood volumes in limbs can be similarly estimated.

Miscellaneous Applications

Space does not permit the discussion of other uses of isotopes in medical science such as the following:

1. The metabolism of Vitamin B_{12} and the diagnosis of pernicious anaemia by means of cobalt-sixty.

2. The diagnosis of haemolytic anaemias by the radiochromium red blood cell

survival test and the estimation of the red cell mass.

3. The study of electrolytic diffusion through cell membranes with reference to digestion, renal excretion and the placental barrier by means of radiosodium and radiopotassium. These isotopes are also used to determine exchangeable sodium and potassium.

4. The use of ^{45}Ca in the study of bone and teeth formation.

5. The study of the biochemistry of diseases such as diabetes with labelled insulin.

6. The estimation of the efficiency of limb circulations by means of ^{24}Na.

7. The confirmation of the establishment of an efficient circulation in skin and bone grafts using radiophosphorus.

8. The location of brain tumours by labelled diiodofluoroscein and phosphorus.

9. The use of radioactive isotopes in pharmacological research.

10. The use of tritium in the estimation of the body water content.

11. The application of isotopic techniques in the study of viruses, bacteriophages and immunology.

Radiotherapy

Unhealthy or rapidly growing tissue in benign or malignant growths is often destroyed by smaller doses of radiation than are normally required to kill healthy cells. X-ray radiation demanding high-voltage tubes has been used extensively in the past but nowadays it is also convenient to use radioisotopes as sources of radiation. The use of radium in this connection is well known.

Radioisotopes can be used either as external agents (teletherapy) or internally. Important external sources are ^{60}Co in the form of the Cobalt Bomb for deeply seated tumours such as carcinoma of the oesophagus or of the fundus of the uterus, ^{137}Cs, ^{90}Sr, ^{137}Ba and ^{192}Ir. Isotopes can also be given internally. Thus ^{131}I is useful for functional thyroid carcinoma whilst a colloidal suspension of ^{198}Au has been employed with success in the treatment of pleural effusions and ascites secondary to malignant growth; it is administered directly into the appropriate cavity after withdrawal of fluid. The radiotherapy of cancer is on the whole a palliative measure though early small tumours of the skin, tongue, larnyx, cervix uteri and bladder can be completely cured. On the other hand it is ineffective in many instances such as primary malignancy of the gut and pancreas.

Radiosotopes are not exclusively employed for treating malignant disease. Intravenous radiophosphorus has been employed in polycythaemia vera and has increased the survival time. ^{131}I has been effective in Grave's Disease and for the symptomatic relief of intractable angina pectoris by induction of myxoedema. Keloids and various skin lesions such as warts and verrucas are routinely treated by radiotherapy.

Radiography

In conclusion two other applications may be mentioned.

Thulium-170 can be inserted in the mouth (in the centre of hollow sphere) and a good radiograph of all the teeth can be taken after a few minutes exposure. For bone radiography good contrast pictures are not obtained but this low-energy gamma ray emitter can be employed as a convenient portable 'X-ray machine'.

Sterilisation

Gamma-rays are capable of killing bacteria and as such provide provide an extremely useful means for sterilising heat-sensitive materials. Cheap polyethylene syringes, catheters, scalpels, sutures and dressings can be reliably sterilised by means of a radioactive cobalt sources. Disposable syringes and other aseptic commodities have nowadays become a reality.

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1. Foret, J., *Paper presented at the 6th Annual Symposium on Antibiotics, October 15-17, 1958 Washington, D.C.*

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Chest Pain Simulating Coronary Artery Disease

by Dr. Victor Captur

Consultant in Cardiology, King George V. Memorial Hospital.
Cardiologist, Malta War Memorial Hospital for Children.
Formerly Demonstrator in Medicine Royal University of Malta, and
Assistant Physician, St. Luke's Hospital.

Pain in the chest may be as nonspecific as any of the symptoms of circulatory insufficiency and is therefore not necessarily always a representative of anginal or coronary heart failure. In other words, it is a symptom that may have originated in a thoracic structure other than the heart. Angina pectoris, the classical syndrome that was so clearly described by Heberden is a symptom-complex that must be considered a clinical disease entity of serious prognostic significance. The gravity of such a diagnosis is known to most laymen and the pronouncement of such a sentence may be the final straw which leads to dissolution.

Again, such a diagnosis on inadequate grounds in a neurotic individual may cause unnecessary mental anguish and even invalidism. The nervous and mental influences play such a prominent role in the etiology of angina pectoris that most careful and most tactful explanation of the situation must be offered to those who actually suffer from the condition.

It is therefore of the utmost importance to have very clear conceptions of what angina pectoris is and to be able to determine who does not have it as well as who has it.

It is not my intention to give detailed tables of differential diagnostic points; these can be found in most textbooks on general medicine or on diagnosis. Rather, my aim is to mention those clinical entities — and they are quite a number — which might lead to some confusion in diagnosis. The ultimate decision depends on various factors — some beyond our control as, for instance, the ability or otherwise of the patient to describe his symptoms, the normal electrocardiogram in cases where the symptomotology is highly suggestive of coronary disease, and the neurotic who is either diabetic or hypertensive.

Apart from these contributory factors, even under ideal conditions the diagnosis is sometimes very difficult to make.

In most cases, however, if one keeps in mind the qualities and behaviour of angina pectoris and myocardial infarction — that is, the site, the character, the duration and the provocation — then the chances are that mistakes will be fewer

At this stage I would like to point out some exceptions to the general rules regarding the qualities and behaviour of cardiac pain which I have learned from my work. For example, anginal pain may be parasternal and not retrosternal; esophageal spasm may cause severe retrosternal pain which is relieved by nitroglycerin, a drug which also relieves gallbladder spasm, so that nitroglycerin given as a therapeutic test is of little value.

I have seen a man with typical effort angina who never had any chest pain, but only pressure pain in both elbows. Another patient with myocardial infarction experienced severe pain in the left shoulder, with no radiation, either to the anterior chest wall or to the arms. And yet another man got severe epigastric pain with vomiting and diarrhoea, in which the electrocardiogram left no doubt as to the diagnosis.

I shall now try to tackle the points at

issue and discuss those conditions which really create trouble in diagnosis. With regard to cardiac pain, unless specifically stated, no distinction is made between angina pectoris, coronary failure or myocardial infarction.

The approach to the subject is based mainly on private and hospital patients, and we shall now discuss the causes of chest pain which might simulate coronary artery diseases.

1. *ANXIETY STATES*

When combined with left inframammary pain, anxiety states present no diagnostic difficulty, but when the pain is parasternal, or even central, it may be very confusing. The patients are usually women near the menopause, and they may describe a central pain radiating to the throat, jaws and arms, during or after effort, when reaching up to a high shelf, when washing or using their arms in other ways and, sometimes, when emotionally upset. The attacks are apt to be widely spread, unrestricted effort causing no distress between them. Complete investigations may reveal nothing significant in any system, and the nature of the attacks remains obscure. Angina can only be excluded by obtaining a normal ECG during spontaneous or induced pain.

2. *DA COSTA'S SYNDROME (NEUROCIRCULATORY ASTHENIA, EFFORT SYNDROME)*

Neurocirculatory asthenia refers to an ill defined syndrome of psychogenic or neurogenic origin, often mistaken for organic heart disease and characterized by dyspnoea, precordial pain, dizziness, palpitation, headache, exhaustion and a general incapacity or inefficiency in adjusting to physical or emotional strain. Despite the distinctive titles given to this syndrome it is not a nosological entity. It is nothing more than a mixture of the more general picture of psychoneurosis which, in the cases under discussion, chances to assume entirely cardiac symptoms.

The characteristic symptoms and signs associted with psychiatric disorders usually make the diagnosis easy.

3. *ESOPHAGEAL SPASM*

Esophageal spasm may cause central chest pain, radiating down both arms and being tight or bursting in character. There is no close relationship to effort but emotional tension aggravates the intensity and frequency of symptoms. The distress arises from abnormal changes in smooth muscle tone. The pain and spasm may be transitory or may persist for hours.

The diagnosis may be proved by demonstrating esophageal spasm by means of fluorscopy and by obtaining a normal electrocardiogram during attacks.

4. *DIAPHRAGMATIC HERNIA*

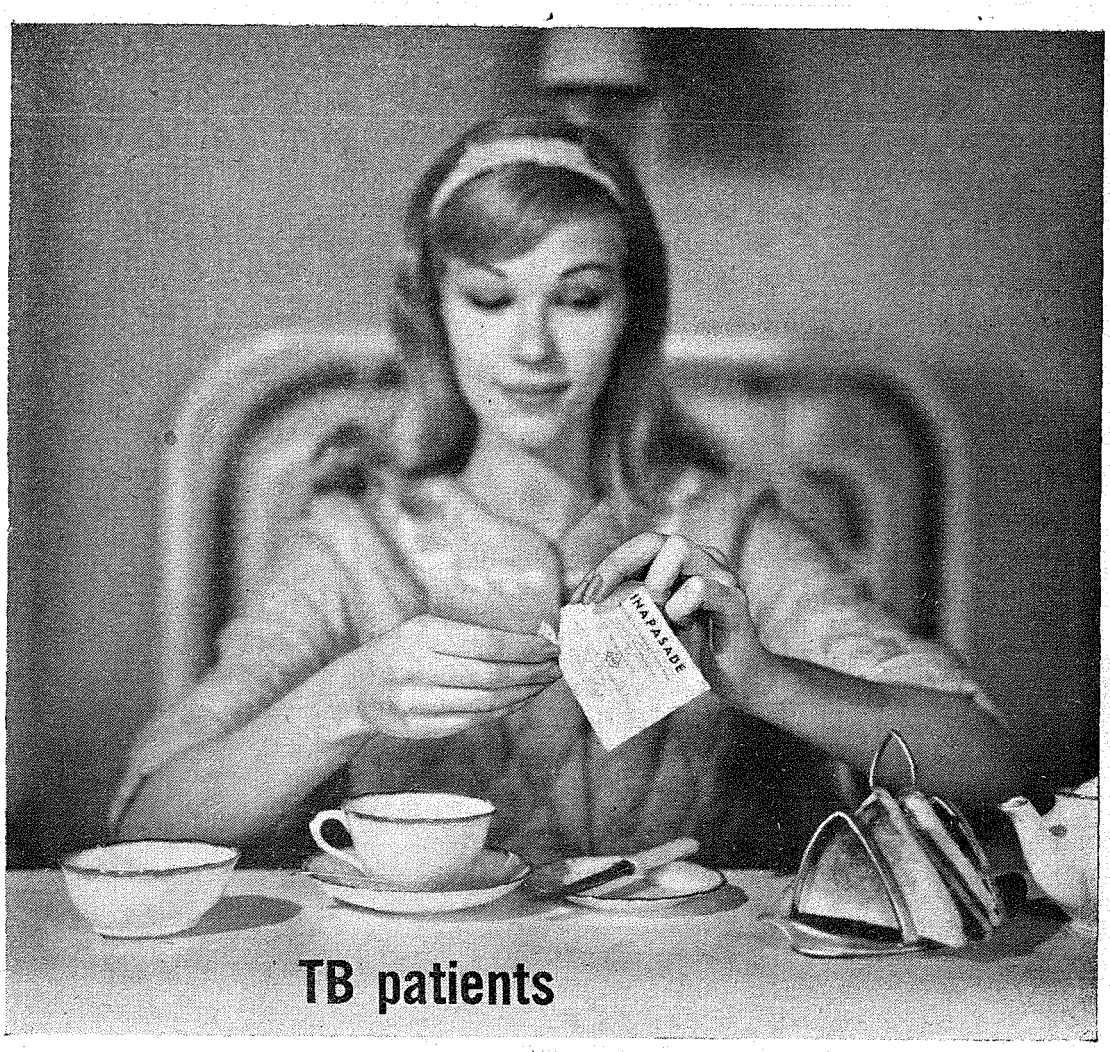
Diaphragmatic hernia may cause, on effort, pain similar to angina pectoris but it is usually more closely related to meals and in most cases is precipitated by lying down or bending forward. It is usually revealed by a barium meal examination.

5. *SPLENIC FLEXURE SYNDROME*

Another interesting example of visceral pain which mimics angina has recently been described under the title of splenic flexure syndrome. It is due to distension of the splenic flexure with gas, probably the result of a spastic colon. Forty cases have been reported, 75% of which had precordial pain, in 25% it radiated to one or both shoulders, in 20% to the left side of the neck, and in 20% down one or both arms. Relief resulted from the expulsion of faeces or flatus. In all these cases a barium meal revealed the condition.

6. *LATERALLY DISPLACED CERVICAL INTERVERTEBRAL DISC*

Discomfort may range from mild annoyance to pain of unbearable intensity. The pain may be generalised throughout



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the shoulder girdle and radiate to the lower arm and hand and to the anterior chest wall. The pain is usually worse in the recumbent position, often awakening the patient or preventing sleep.

It is quite easily differentiated from cardiac pain by the fact that motion of the neck, usually, hyperextension, or rotation of the chin to the painful side, aggravates the pain. Also, coughing, sneezing and straining may cause severe jolts of pain.

7. *SCALENUS ANTERIOR SYNDROME.*

Scalenus anterior syndrome may be defined as a painful symptom complex affecting the shoulder girdle, neck, chest, arm and hand, often associated with numbness and tingling due to irritation of the brachial plexus and subclavian vessels by a spastic or hypertrophied anterior scalenus muscle.

As you know the anterior scalenus muscle arises from the transverse processes of the 3rd, 4th, 5th and 6th Cervical vertebra it comes almost directly downwards to be inserted on the scalene tubercle on the upper inner surface of the 1st rib. At each level from the 4th to the 7th C. segment, a branch is supplied to innervate the muscle. The subclavian artery lies within an acute angle formed by the scalenus anterior muscle and the 1st rib. The subclavian vein lies in front of the muscle and in the space between the 1st rib and clavicle. A trough is formed with the ribs as a base — the scalenus anterior muscle in front and the scalenus medius behind; the subclavian artery and brachial plexus are contained within the triangle and therefore any spasm or shortening of the muscle would cause compression of the contents of this triangle which include the subclavian artery and brachial plexus. Differential diagnostic points are:—

a) forcing the head back and away from the painful side may cause increased pain.
b) arterial amplitude and pressure changes take place with deep breathing, and extension and rotation of the cervical spine.
c) reflexes may be diminished or absent.
d) there may be fullness of the supraclavicular space.
e) the grip is poor.
f) compression of the anterior scalenus muscle just above the clavicle causes intensified pain.

I have spoken at some length on this syndrome because it is not generally appreciated that it is not an infrequent differential diagnostic problem.

8. *PECTORALIS MINOR SYNROME*

Persons engaged in strenuous work may suffer from chest pain due to strain of the pectoralis minor muscle which arises from the anterior ends of the 3rd, 4th, 5th ribs and narrows as it passes to be inserted into the medial border and upper surface of the coracoid process of the scapula. This pain must not be confused with angina if the left muscle is involved. The pain is provoked by movements of the arm but never radiates down the arm. It can be reproduced when the backward and laterally outstretched extremity is pushed against resistance, a manoeuvre that requires contraction of the pectoralis minor.

9. *INTERCOSTAL NERVE PAIN*

Irritation of the intercostal nerves may arise from a "neuritis" of those nerves, resulting from trauma, systemic or upper respiratory infections or other toxic causes, or pressure upon the nerve. The "neuritis" is often aggravated by exposure to cold, like angina pectoris, but the pain is localised in the intercostal spaces and the patient is usually able to identify the exact side of tenderness. The

nature of the pain may be stabbing lancinating or burning. One may locate tender pressure points near the parasternal lines.

10. *MYALGIAS*

This scapegoat of so many of our problems does, in reality, exist. When we tell our patients that this and that pain is "nothing, it's rheumatism etc." we may be justified in our diagonsis but not perhaps in our concept of its etiology. As you know irritation of muscle is a frequent cause of somatic pain. Apparently muscle is a tissue from which only one sort of pain is produced; the description is aching in nature.

The aching muscle tenderness of the intercostals to motion and palpation after unaccustomed exercise, and muscle stiffness and pain following exposure to cold are clinical myalgias in their commonest forms. They result from mild inflammation of muscle tissue.

Myositis involving the intercostal muscles may give rise to marked discomfort and nodules and induction in the muscles may be present.

11. *THE OSTALGIAS*

The source of pain from bone is the numerous sensory nerve endings in the periosteum and to a lesser extent in the endosteum. Pathological processes in the ribs or sternum will be diagnosed by inspection, palpation and X-rays. Fractures, subperiostial haematomas osteomyolitis, or tumors, may be the cause of localised pain and tenderness. Here I would like to mention a syndrome called Tietze's syndrome which I have never encountered but appears not to be rare according to the literature and consists of a non-specific, non-supperative painful swelling of the costal cartaligies and usually accompanying chronic respiratory infections.

12. *MISCELLANEOUS PAINS*

Other pains which are usually easy to diagnose and which should not cause any diagnostic dilemmas are herpes zoster, pleural pain and mastodynia.

Tumors, especially bronchogenic carcinoma may be attended by severe, continuous pain when the tumour tissue, extending to the pleurae through the lung, constantly irritate the pain nerve endings in the pleura.

The occurrence of spontaneous pneumothorax is often signalised by severe pain, usually in the upper and lateral thoracic wall and is exquisitely influenced by any movement and by the cough and dyspnoea which accompany it.

13. *LEFT SHOULDER PAIN*

Pain from the left shoulder may be referred to the anterior chest wall and down the inside of the left arm. It has been proved that if an injection of hypertonic saline is made into the left 8th cervial interspinous ligament pain is felt over the left breast and inside the left arm. This disposes at once of the idea that this pain distribution is peculiar to angina, and therefore the left shoulder should always be examined before a diagnosis is reached.

We shall now consider those cases where the pain is severe enough to mimic an attack of myocardial infarction. Since this talk is concerned with chest pain we have intentionally omitted some episodes which are of the utmost importance and which the students should read and reread again. These episodes present themselves as mainly epigastric in location and have to be differentiated from coronary thrombosis. I am referring to acute pancreatitis, perforated duodenal ulcer and mesenteric vein thrombosis.

14. *GALL-STONE COLIC*

At this stage I have to make a confession. Every physician, I believe, has his

favourite disease — diagnosis relationship. Without trying to be dogmatic I would like to stress the importance of gall-stone colic as a cause of lower retrosternal pain, closely resembling coronary thrombosis. To make things worse the attack is usually followed by shock, nausea and fever. One diagnostic point I have found to be very useful when present is pain referred to the right shoulder. The electrocardiogram, of course, gives conclusive evidence but then we don't carry an EGG in our bag, and it may require all the acumen of an experienced physician to differentiate gall-stone colic from coronary thrombosis.

The pain of the colic is usually centered high up under the xiphisternum and may extend upwards; it radiates through to the back and may have a segmental distribution similar to that of angina; it is constricting in character and may be so intense as the most severe anginal pain.

Occasionally other points help in the differential diagnosis, for instance the copious vomit of bile in colic and its association with a slow pulse rate.

15. *THE DUMPING SYNDROME*

In the March 1950 issue of The Practitioner, Paul Gibson has pointed out the similarity of the dumping syndrome to coronary thrombosis. Either during a meal, or about 30 minutes later, there may appear quite abruptly a feeling of acute discomfort high up in the epigastrium with palpitation and sweating and a feeling of apprehension and faintness. The symptoms may last for an hour or more and then pass off leaving the patient weak and drowsy. Without the history of gastrectomy we can easily be misled but recovery is rapid and the blood pressure usually rises. A history of previous attacks is important.

16. *PULMONARY EMBOLISM.*

If the attack of embolism is manifested by chest pain, haemoptysis and physical signs in the lung, pulmonary embolism is easily diagnosed, but haemoptysis and physical signs are more often absent than not. In general, pain excited by pulmonary embolism is apt to be sharp and pleuritic in quality. Cyanosis is often more striking and tachypnoea more frequent than in cases of acute myocardial infarction. But the most important clue, and this is really important, is early engorgement of the cervical vein and immediate hypertension. The ECG is diagnostic.

17. *CARDIAC ARRHYTHMIAS*

The sudden onset of an arrhythmia, especially when associated with tachycardia, is sometimes attended by oppressive substernal pain which may be prolonged, by cold sweat and occasionally by dyspnoea and other evidences of heart failure. Such a picture is often mistaken for acute myocardial infarction. Discovery of the arrhythmia does not always exclude myocardial infarction since the latter may be associated with certain arrhythmias at its onset. Cessation of the pain and other symtoms when the arrhythmia disappears, and absence of the characteristic ECG changes of cardiac infarction exc'udes this condition.

18. *ACUTE PERICARDITIS*

Acute pericarditis may simulate cardiac infarction closely but the pain of pericarditis may be intensified by cough and deep respiration. The ECG distinguishes between the two conditions.

19. *DISSECTING (NON-SYPHILITIC) ANEURYSM OF THE AORTA*

Occurs predominantly among males between the ages of 40 and 70 with preexisting hypertension. Weakness of the media due to degenerative disease is the

basic disturbance. The intimal lesion occurs commonly a few centimeters above the aortic valve or near the origin of the left subclavian artery, but it may occur anywhere in the thoracic aorta.

Of great diagnostic significance is the persistence of hypertension even when there is evidence of shock after the onset of the dissection. A difference in pressure in the two arms favours dissecting aneurysm. In both conditions there is severe retrosternal or precordial pain but the pain of dissection aneurysm of the aorta usually occurs more suddenly, is often of an immediate tearing quality and is apt to have more widespread radiating qualities, e.g., to head and neck, to the back, the lumbar region and the lower extremities. Dysphagia due to the pressure of the false sac on the esophagus occurs rarely but when present, however, it is a distinguishing diagnostic feature for it is not encountered in coronary thrombosis.

The last condition to be described is:-

20. *SPONTANEOUS INTERSTITIAL EMPHYSEMA OF THE LUNG.*

(Mediastinal emphysema)

Since I have never seen a case of mediastinal emphysema I am quoting from Friedberg's "Diseases of the Heart". This syndrome may be characterised by an abrupt onset of severe chest pain in the substernal region, radiating to the neck and left arm. The true cause of the pain may be betrayed by the pathognomic sign of very loud peculiar crunching, crackling or bubbling sounds over the sternum and precardium synchronous with cardiac symptoms. X-ray of the chest may reveal shadows of air in the mediastinum itself.

Before concluding I would like to recapitulate the notes on the relation of pain to exertion and on the character and location of pain because of their importance in the final diagnosis.

RELATION OF THE PAIN TO EXERTION

Pain in the conditions simulating heart disease is chiefly distinguished from angina pectoris by being unrelated to general bodily exertion, especially walking rapidly or uphill. The pain secondary to lesions of the shoulder or to local disease of the chest wall may be precipitated by exercise of the local areas but not by general bodily effort.

Active or passive movements of the left arm on the cervical and thoracic spines through its complete range of motion, or deep inspiration, coughing or sneezing may reproduce the pain and disclose its noncardiac origin.

And now this is very important — the occurrence of pain with emotional states is not decisive, being as common with neuroses and functional disturbances of the gastro-intestinal tract as with angina pectoris.

CHARACTER AND LOCATION OF THE PAIN

A dull ache in the precordial region or above and to the left of the heart is common in neurotic persons, or as a result of pectoral myalgia or neuralgia. A dull ache or sharp, sticking or stabbing pain in the region of the apex or in the left breast also occurs frequently in neurotic subjects. In addition, there is often a complaint of excessive fatigability, palpitation, different pains in different parts of the body and difficulty in taking a deep breath. The pain occurs at rest as well as with effort, and especially when the patient is fatigued. There is often an hyperaesthesia in the painful area, usually in the segmental distribution of D 4 and D 5 rather than of C 8 and D 1 as in angina. I have observed a similar type of pain in subjects with indigestion, especially in middle-aged obese patients. This form of pain, variously located in the

chest and abdomen, results from gastro-intestinal gaseous distension.

Occasionally the pain of a gastric or duodenal ulcer is situated in the lower sternal region; it has a burning or boring quality, is not related to effort and is relieved by milk or alkalis.

The pain due to pleurisy or pericarditis is unlikely to be confused with the pain of coronary disease because of associated clinical symptoms, the presence of fever and other objective evidences of infarction and local disease, the sharp nature of the pain and its frequent occurrence with deep inspiration.

When doubt remains, and this is not a rare occurrence, one can seek help in the X-ray department; this applies to cholelithiasis, peptic ulcer, diaphragmatic hernia, aortic aneurysm, pleuropulmonary diseases, destructive lesions of the ribs and shoulder pain lesions.

I conclude by quoting Dr. Richard Cabot from his "Case Teaching in Medicine": "The most important lesson to be learned by every student of medicine is the art of recognising the physical signs of disease — a displaced cardiac apex, an Argyll-Robertson pupil, a friction rub. But these data have to be interpreted. They do not crystallise spontaneously with conclusion. They do not arrange themselves in those significant groups which we call diseases. They have to be worked up with diagnosis by a reasoning process and this reasoning needs practice."

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Extracts from the Report by the M.M.S.A. Delegate on the 12th General Assembly of I.F.M.S.A. held in Oslo

Thanks to the financial help forwarded by the M.M.S.A. and by local and foreign firms, and to the moral help of all my Council colleagues, I was able last August to proceed to Oslo where I had the opportunity and honour of attending the 12th General Assembly of the I.F.M.S.A. as a delegate of the M.M.S.A. This is the 5th time Malta took part in such an international Congress since its becoming a member of I.F.M.S.A. in 1954 at the Rome Congress.

This 12th General Assembly was organized by the Norwegian Students' Travelling Association, and was housed in the Norwegian Radium Hospital at Montebello, some kilometres out of Oslo.

The participation to this Assembly was one of the highest ever since the establishment of the I.F.M.S.A. in Copenhagen in 1951. About 60 delegates representing well over 200,000 students from 21 member countries were present, together with representatives from the W.M.A., W.U.S. and E.I.L.

On official Opening Day the gathering was addressed by the Health Director of Norway: Dr. Karl Evang; the Chairman of Det Norske Radium Hospital; Dr. Johan Steve Brun, representative of the W.M.A.; Mr. Edwin Sandberg of the N.S.T.A., and by the I.F.M.S.A. President Mr. Vasilis Tsemanis (Greece).

This was the official launching of the 12th General Assembly and set the ball rolling for a fortnight of work all intended for the better understanding of, and co-operation between Medical Student Associations throughout the world on a purely professional basis.

New applicants for membership to I.F.M.S.A., this year included the Association des Etudiants en Medicine Universite Lovanuim (Congo), the Union Generale des Etudiants d'Afrique Accidentale (Senegal), the Union of Cairo University Medical Faculty students (Egypt), and the Centro des Estudiantes de Medicina de Lima de Peru.

When it came to the establishment of Working Comittees, Malta was elected as a member on the Committee on Medical Edulation. In this Comittee we worked mostly on the drafting of an Agenda for an International Educational Conference on Medical Education, the scope of which was to be the investigation of Curricula, Standards, Requirements, Equivalence and Recognition in various Universities, and the investigation of the possibilities and implications of a wider International Medical Equivalence in the future. Malta being the country on this committee whose teaching system is most near to the British System of teaching, we were taken as exponents of this System, and as such I had an active part in the proceedings. One point that interested the other committee members mostly was our system of having External Examiners from other foreign Universities. On this point I had to enlarge and illustrate and eventually this item was put down for discussion on the Medical Conference Agenda, that was scheduled for Berlin.

I also took a very active part in the Exchange Officers' Meeting — the Standing Committee on Professional Exchange, (SCOPE), this being the major field of activity of the I.F.M.S.A. In these meetings I talked on our opinions about post graduate exchange, pre clinical exchange and non clinical exchange, and on our possibilities of participation in such schemes.

Also I gave a report on our Clinical Exchange programme outlining the history of our Exchange, the structure of our present exchange system, and our plans for the future as far as these were forseeable. Eventually I had an Exchange Officers report printed and distributed to the General Assembly together with a copy of our Journal "Chestpiece". I must say that I really enjoyed the discussions. I also presented some motions.

During the General Assembly I took a leading part in the discussions against a controversial letter addressed to the General Assembly by the Segretariato Italiano di Studenti in Medicina. The subject is too complex and extensive to explain in this short report.

The General Assembly considered the reports of the Executive members and Directors of the Standing Committees and thanked these officials for their work in the framework of I.F.M.S.A. During the proceedings, of particular interest were the speeches given by a student from South Africa, and a delegate from Peru, not to mention the discussions on the controversial French question as to which of the two French delegations present actually presented the french medical students.

New regulations telling upon the General Secretariat were discussed, the most important issue being that the General Secretariat was to be an office of 3 years and that a permanent secretary was to be employed by the elected country.

The elections ended with the following results. Mr. Raphi Walden (Israel) — President; Mr. Jaakko Leisti (Finland) — Vice President; General Secretariat and Treasury — Denmark; Director of SCOPE and SCOP — United Kingdom; Director of SCOME — Germany; Director of SCOSH — Holland; and Director of SCOE — Switzerland. The other three executive members are Austria, Normay and Japan.

During the elections Malta was nominated to be one of the three countries to help in the directorship of SCOE, and also to be elected as an Executive Board Member. On both occasions, conscious of our financial possibilities and the lack of free time in the coming year, which is to be our final year, I had to turn down the offers half heartedly, thank the proposers and pocket the honours. I had to do the same thing when many asked me to invite the next General Assembly to Malta. In fact this will now occur in Poland (Gdansk). It is also understood that the 1964 Student International Clinical Conference will be held in London.

Malta was asked to invite the EBM/EOM. I took up the proposal and on returning put it to my Council and to the University. The idea was taken up, and this EBM/EOM is to meet here in December/January.

The Social part of the 12th General Assembly was well organized, varied, and literally ran without a hitch. Activities included sight seeing, dances, visit to A/S Nyco drug firm, reception by the Lord Mayor at the Town Hall, visit to the Oslo department for Casualties, and a sumptuous farewell dinner. The N.S.T.A. should really be congratulated for their organization.

CONCLUSION:

Everything considered, this partilipation of Malta in the 12th General Assembly was beneficial in more aspects than one. The contacts established are sure to be fruitful, and the experiences acquired will surely become handy when tackling our problems. Personally I have acquired a lot and my only regret is that there were not present the other members of my Council to enjoy with me the feeling of international brotherhood, and participate in the proceedings. I am sure that is Oslo I have seen democracy at its best, regard-

less of Creed, Colour or Political outlook.

I would like to recommend to the present M.M.S.A. Council, and the one to be elected for 1963/64, to treat seriously the task of organizing the Winter EBM/EOM, and above all to strive to get Malta to be always more active in the various fields of I.F.M.S.A. activities. Above all I think that every Council should seriously entertain the idea of sending a delegate or delegates to the Annual General Assembly. This would give a quota of new energy to our Council yearly and so keep it always young and active in the national as well as in the international field of medical student activities.

Closing I would like again to thank all those who materially or morally helped to make this participation of the Malta Medical Students' Association to the 12th General Assembly of I.F.M:S.A. in Oslo possible.

This report was acknowledged with thanks at the Council Meeting held on the 10th September 1963.

The M.M.S.A. Council thanks the following Gentlemen and firms through whose generosity, the attendance to this conference was made possible. Mr. George Borg Barthet Ph.C. (Pfizer Corp.); Beechm Pharmaleutical Exports Ltd.; Carreras of Malta Ltd.; Roche Products; Mr. Louis Vella; Malta Syntheties Ltd.; Malta Tobacco Co.; Parke Davis Corp; Vivian Commercial Corp (Boehringer GmbH.); Nicholas Laboratories; Geigy Pharmaceuticals Co. Ltd.; A.C. Gera & Sons; Riker Laboratories; Mr. Mario Fava B. Pharm.; G. D. Searle & Co. Ltd.; Vitamins Ltd.; Dacoutros Bottling Co. Ltd.; Gasan's Enterprises; Mr. Joseph Cassar; Rigg Welts Co. Ltd.; and Messrs. C. & H. Bartoli.

GEORGE W. VELLA
Exchange Officer M.M.S.A.

Exchange Officer's Report to the EOM, 12th G.A. Oslo

Malta was unanimously accepted as a full member of IFMSA at the 3rd G. A. in Rome in October 1954, and since then I would say that the greatest participation of the Malta Medical Student Association in IFMSA activities was in the field of Student Exchange, suffice it to say that Matla was once Director of SCOPE.

We accepted the first exchanges in 1955. These were two from Germany in September 1955. For us this was just the beginning of a participation in a scheme that made us widen our knowledge of the student world outside.

Following discussions with the responsible authorities the committee of that time succeeded in obtaining permission to accept 15 students from abroad in the month of July, August and September. Needless to say, the applications were always more than 15, much more, and I assure you the greatest difficulty of every Exchange Officer in Malta is to decide which AF's to accpt and which to reject.

The idea of student exchange also facinated the Maltese students from the beginning, and in fact in 1956 the first 6 Maltese students left for Berlin, Munich and England. This number may seem small to you but may I point out that in my island the number of medical students is also small.

The figures for this year are very encouraging. Up to next October we would have received 19 foreign students coming from Austria, Denmark, England, France, Germany, Italy, Berlin and Switzerland.

The number of Maltese outgoing students this year is 12, going to Austria, Berlin, Germany and England.

As you might have noted, this year we exceeded the permitted number of 15, but this was due to some exchanges on a private basis between the Deans of the Medical Schools concerned, semiofficially through the Malta Medical Students' Association. We did not like this very much and in fact succeeded in being assured that as from next year all exchanges will be officially through the MMSA according to IFMSA regulations.

Another step forward in our programme this year was our success in obtaining another extra two clerkships every month of the year apart from the 15 permitted in the summer months. I am sure that this will interest many of my fellow Exchange Officers here. The number of available places is thus now 33 per year.

Also this year we made our first step into pre-clinical exchange and are now in a position to accept a limited number of pre-clinical clerkships in Anatomy or Physiology.

This year contacts were made with the following countries:

Germany: Our first contacts in 1955 were with Germany and I must say that since then our dealings with this country were very successful, with little if any difficulties. In fact the highest number of exchanges with us is always from Germany. We hope to keep this up in the future.

West Berlin: My comments for Germany apply equally well for West Berlin, even though this year our correspondence was not as smooth flowing as in past years.

Austria: I found no difficulty in formulating and signing a contract for an exchange of 2 students with this country, and I would like this to be done every year.

France: This year I had only one student from France and I would like to mention here that this student was accepted without an official A.F. The reason is that this student had written to his EO three times. He got no answer for the first two letters, and on the third time he was referred to another association. No answer however, came and he remained without an A.F. The most plausible reason for this may be found in the fact that he comes from Rennes and I could see in the Report from FNEMF that Rennes belongs neither to FNEMF nor to UNEMF:

England: Difficulty to obtain clerkships here remains as acute as ever and the few exchanges we have had were on a private basis, specially with students from the Royal Free Hospital (London).

Switzerland: The first Swiss student was accepted this year. I thank the Swiss EO for wanting to accept some of our students but here we met with language difficulties as few Maltese students can talk and comprehend French or German fluently enough to undertake a clerkship.

Denmark: Quite good negotiations, and I would like here to excuse myself with the Danish EO for being somewhat slow in dealing with his correspondence.

Italy: A contract was made for 2 exchanges and no difficulties were met with.

For 1964 we envisage an even larger exchange programme. New lodgings are being built at our hospital and we hope to try and have the necessary discussions with the concerned authorities to secure as much lodging space as we can possibly get for foreign students.

I would like to close by saying "Thank you" to all the Exchange Officers with whom I have corresponded, all of th were so nice and co-operative, and I would also like to invite countries who never had contacts with us, to do so.

Extending my Councils' congratulations, I thank you and wish all the best of luck in any project you undertake.

GEORGE W. VELLA
E.O./M.M.S.A.

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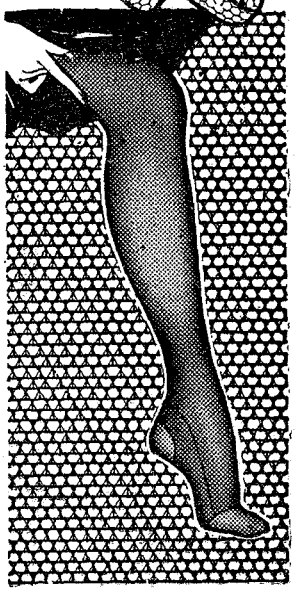

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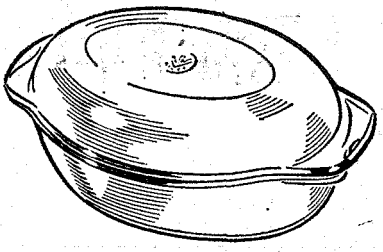

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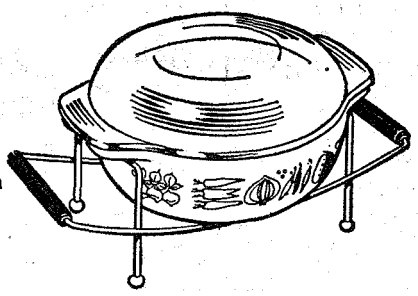

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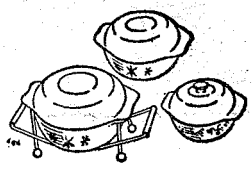

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