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AN ETIOLOGICAL FACTOR

There are certain subjects which never get written about for a variety of reasons but which may need to be considered very seriously. Looking around one cannot, as we ourselves with a personal liking for preventive medicine have done, refrain from congratulating medical science on its triumphs. A number of the great epidemic diseases are held in check; for a large number of illnesses remedies have been found and man's natural life span has been extended with a result which is proportionately more pleasing the nearer one gets to the three score and ten years of the psalmist. We have come to know man better — we have come to know the intimate chemical processes of which life consists. Duclaux, who succeeded Pasteur as director of the famous institute, as far back as 1896, rightly said, "Chemistry has taken possession of medicine and will never let it go." All this, coupled with the advances brought about by the psychiatrists which cannot be ignored except at our peril, should have led to a golden age and may yet do so, but it would be foolish to think that such an age has arrived. Once we have to such a large extent succeeded in overcoming or curbing the ravages of bacterial, viral and

parasitic disease, once we are progressing so well in our fight against the difficulties due to wear and tear of the body machine and those attributed to inherent malformation, why is it that the golden age is not here nor even round the corner? Periclean Athens may not have been as perfect as our imagination visualises it, but what has Age may have had its flaws, but what has never been should be and pessimistic indeed would be he who gives up even such dreams. What is it that stands in our way? In other words, what is the etiology of our present social evils? The logically precise might deny that there are evils or that they are at present more abundant than one would normally expect them to be. In fact, however, when one looks at at our harassed unhappy society, at individuals bitterly at odds with their environment, at whole nations at war or with the fear of imminent catastrophe looming over them, at want and poverty which still holds so many millions in thrall, it would be idle to pretend that our age is at all perfect.

Obviously to such complex questions there is no simple answer but it does seem there is at least one general cause responsible for many evils and that is none other than stupidity. This subject is generally taboo because many fear they can themselves be found guilty of it. This fear arises from a natural but erroneous equation of stupidity with ignorance. Ignorance of course, is universal and, though nothing to be proud of, is relatively harmless. It has been well said that we are all ignorant but on different subjects. Sherlock Holmes expressed his complete indifference to knowing whether the earth revolved from east to west or viceversa and felt contemptuous of the suggestion that he should turn his brain into a mere storehouse of knowledge, something worthy only of an encyclopaedia. Intelligence is the reverse of stupidity and its possession should be our objective. Logical accuracy, precise observation, correct deductions and, if necessary, original application of data should be our aim. If intelligence prevailed over stupidity, we would have a ready means of preventing at source such social plagues as drug addiction, warfare and the present obsession with sex. People follow fashions unquestioningly, not only in the harmless matters of costume but in the vastly important ways of thought. This is almost solely due to stupidity, to a dullness of the brain and to misuse of the brain. One recalls Professor Higgins's indictment of the feminine sex:

"Straightening up their hair is all they ever do.
Why don't they straighten up the mess that's inside?"

Today more than ever this applies to both sexes and it is the essential stupidity that lies behind these attitudes that should be eliminated before we can prosper. It is time for plain speaking since the edge of our anger has been blunted too badly by uncertainty, by a misplaced dread of frightening away those who should be our patients.

What has this to do with medicine? This question need hardly be asked in a world filled *ad nauseam* with chatter about perversions, abortion, addiction and special diseases. After all it is the doctor who will generally find himself called in to repair the havoc which others have caused. One poster in the first World War posed the question which children could have asked their father: "Daddy, what did you do in the Great War?" Many doctors should stretch their imagination to see what history will think of them. What did they do in the Great Decadence? Did they just follow the trend, carrying out abortions as desired or obediently prescribing drugs for the addict? Or did they have the courage to stand up against what was wrong, irrational and stupid? This would be the applied psychiatry of today. This could restore the national character and help to give us that health which science can provide.

Is it not time for a Renaissance? Doctors now are entrusted with a far bigger power than they ever had and it is they, rightly or wrongly, whom so many people trust. It would be wonderful if we availed ourselves of these great opportunities.

MALTA IN THE ETHNOLOGICAL COMPLEX OF EUROPE

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A Public Lecture given under the auspices of the Royal University of Malta Anatomical Society in May 1971.

I was in some doubt as to how to approach this subject because you are an Anatomical Society and of course one could be plunged into purely physical anthropological methods, but as I knew other people would be present and also that in any case the best way to deal with the matter would be on broad comparative lines in the first instance, I decided that it was best to handle it in this way. I hope it will not disappoint you.

Now, one thing I should say is that I shall only be briefly mentioning the prehistoric position and development and that you may find my pronounciation of some Maltese names very deficient indeed. I hope you will forgive me. I think you would be in equal difficulty if you came to Argyll in Scotland. The two things we have in common are that we have the gutturals and the strongly stressed vowels when we want to use them. I wish to emphasize that before it is possible to see the Maltese people in their racial aspects correctly it is necessary to consider them within the wider framework of the races of mankind and those of the Caucasoid races, of which they form a part, in particular.

There are three main stocks of mankind which if we were using the taxonomic methods of zoology we would call species. I do not want to read into that anything abnormal. I want to say that if we were using the same sort of classification we would not be calling them races, we would be calling them species. The fact that they are interbreedable does not affect such a classification, as many species, and some genera, are known to be interbreedable. The creation of fertile crosses depends upon the possession of a basically similar anatomical structure and of the same number of chromosomes.

These three major stocks are the Negroid, Caucasoid and Mongoloid. Substocks of these are the Amerindian, a branch of the Mongoloid, and the Australoid, which, while it appears to have affinities with Neanderthal man, also appears to show relationship to the Caucasoid, which is an absolutely astonishing thing since the two stocks are widely apart. It is my view that the Ainoid, represented by the Ainu of Japan, is a northern, white, offshot of the Australoid, and not a branch of the Caucasoid. Many of the so-called Australoid elements of South America may very well be Ainoid rather than Australoid. Although the southern Australoid, found in New Guinea and Australia is black, it should be stressed that this nigrescence appears to be different from that of the Negroids. The late Professor Ruggles Gates, a very distinguished Fellow of the Royal Society, found that one pair of genes accounted for the black colouring in the Australoids, whereas where the Negroids are concerned he discovered that four pairs of genes were involved. This would account for the frequency with which fair hair occurs among the Australoids.

Since the last war the term *Geographical Races* was coined for the major stocks and their subdivisions, as though this was something new. Ethnology has always recognised that the major races and stocks were, in a sense, geographical. That is, that each stock and race had evolved within its own geographical or rather climatic environment. It must

be stressed that the environment cannot change the germ plasm (as was thought by earlier environmentalists, and still, in a dim sort of way, is believed by all those who teach that *nurture* is more important than *nature*). What nature does is to determine whether a particular type can survive in a certain region, and if it cannot, to kill it off, and encourage another type which is better adapted to that climate and terrain.

Thus the Negroid stocks are adapted to life within the equatorial and tropical regions of the world, and so they are found from the Niger to the Congo, with Melanesian groups in the East Indies, and extensions, through colonial activities, to the hot lands of America. This stock has a complete adaptation to this zone. It has a greater number of sweat glands, it has a darker skin enabling it to withstand ultraviolet radiation, while even the broad nostrils and the wooly hair formations are beneficial to people living under the tyranny of everlasting heat and sunshine. The Caucasoid and Mongoloid stocks, in contrast, through their light skins, are able to synthesise vitamin D from solar radiation and so live in cold, cloudy climates where the Negroids and Australoids could not survive. The black skins would prevent their being able to carry out efficiently such a synthesis. The narrow nostrils are, probably, as are the smaller number of sweat glands, useful in conserving heat and preventing chilling in the cold regions where the types were first characterised, and for which they are best adapted. Differences in bodily proportions between the Caucasoids and Mongoloids reflect, in my opinion, the differences of terrain in the regions in which the two stocks evolved for a significant and long part of their prehistory. I believe that the Caucasoids originated east of the Urals, in Siberia, on the great Siberian plains, and the Mongoloids arose and developed in the higher lands of inner and eastern Asia. The longer legs, and more slender build of the Caucasoids are better adapted to a plainsman's way of life, while the shorter legs, and powerful calf muscles, are those of a people evolving in a mountainous terrain. Even the "screwed-up" appearance of the eyes, as seen in the typical Mongoloid, is probably an adaptation to the winter conditions of ice-fields, and the high winds of the mountainous environment of inner Asia.

In this sense, therefore, each stock has its region of characterisation, and in that sense it is a geographical "race". The genes which have survived during the long period of development are those which enabled each one to survive best in the lands where they were long resident and where they had to survive by adaptation, through natural selection.

There is what I regard as a mischievous suggestion current today which argues from the concept of geographical races that, in fact, all races are basically mixed, because there is from time to time the flow of genes from one stock into that of another. This I regard as a mischievous suggestion because I believe it is in response to current sociological, and even political, thinking, and it is not based on scientific evidence or thought.

No one is going to deny that from early times crosses took place between the major stocks along their peripheral areas where they met, although it should be observed that this probably occurred but little in the earliest periods of prehistory, and only became a significant phenomenon as time passed. However, the suggestion that this caused a great mixing up of the current stocks has to be taken with very great reserve — certainly as far as the Caucasoids and Mongoloids are concerned in relation to the Melanoid or black stocks of mankind, for the clear cut differences of environment which distinguish the habitats of the northern cold land peoples from those of the stocks living in the hot countries set limits to the survival of such intrusive genes.

There is a mistaken tendency to place too much reliance on blood groups and other genetic characteristics which can be studied very largely in isolation from the traits which generally are taken as the characteristics of stocks and races. These genes do not perform in isolation. They are borne on chromosomes, and those chromosomes carry genes which produce

the traits on which the classical anthropologist bases his identification of races. Consequently, since on each chromosome it is tolerably certain that there are borne traits which are responsive to environment and other forms of selection, it follows that traits such as blood groups and tasting ability are being encouraged or eliminated, as the case may be, all the time. Therefore, it is quite a mistaken notion to study the blood groups in isolation from the physical and anatomical anthropological criteria, as is so frequently being done today. To suggest that, because of certain racial similarities of blood groups, a particular Stock *A* must have an infiltration of Stock *B*, when in their physical traits they show no evidence of such an admixture, is bad science, and due to a reliance on too narrow a basis of investigation. Yet that is just what several noted serologists have done, with most peculiar conclusions as a consequence. For instance, to give a simple illustration, the characteristic blood groups in the ABO series of the Western Caucasoids are A and O. For the Mongoloids they are B and O. But for the Negroids over large areas of Africa we have A and O. It is obvious, therefore, that one cannot identify Negroid infiltration of Mongoloid by the blood groups alone, as the A detected in such a Mongoloid stock could just as likely, and, geographically speaking, more likely, have come from the Caucasoids. Further refinements in the identification of blood groups can reduce the occurrence of such errors, but it is unlikely they can do so entirely. Therefore, great caution must be used when employing the criteria of the newer techniques, and they should never be employed in isolation neglecting the anatomical differences as seen between one stock and another.

While crossings have always taken place where a stock, or race, has met another, and some of the genes of such crossings have filtered gradually towards the heartlands of such a recipient stock, it is unlikely that the crosses survive over any length of time. Because of genetic segregation no permanent cross is normally made by haphazard mating. It can only be created by special selective factors. Since the major stocks are so-called *geographical races*, it follows that the segregates which carry the traits of the intrusive racial stock will not survive the enviroonmental hazards of the zone in which they find themselves.

Consequently through millennia of human history, whatever crosses have been made from time to time between the stocks, genetic segragation, aided by the selective factors of the geographical conditions, has ensured the elimination of the type which has not belonged to that region. Therefore, speaking in general terms, the major race and stocks have remained in the regions, to which they naturally belong, largely uncontaminated by any permanent admixture from other stocks.

When we come to the borderlands of the major stocks the situation can be quite different. For in such situations we have climatic conditions which may not be so clearly marked that they favour one or the other. To meet this criterion I have enunciated the concept of *Racial-Breeds*. These are analogous to the breeds which breeders of animals create, which combine traits from more than one stock, and, because of selection, have come to breed true. Among human beings, I am of the opinion that the so-called Ethiopic, or Cuhistic, stock is a case of this sort. Originally its habitat lay throughout north Africa, on the northern fringes of the Sahara, when that was a land ranging from savannah to well watered pastures, and this region swept in an arc round to the Sudan and into North East Africa — the so-called Horn of Africa. In my view it is a cross, originally, between the Caucasoid stock and an Australoid strain, with, later, perhaps, some Negroid admixture — but this latter is not a strongly marked characteristic. In other words, between the no man's land of hot equatorial and tropical Africa and cold Europe, there arose a cross-breed strain, which, with continuing selection, produced the Cushitic type which is adapted to this intermediate belt between the very hot, and the cold, lands. That is why in the Sudanese, Nubians, Ethiopians, and So-

malis, one sees peoples whose features are close in form to those of the Caucasoids, but who have the protective black colouration which is common to the Australoids and Negroids.

This, then, is the general anthropological background against which we must study any people's ethnology. When we come to consider the Maltese, we have to place them not only in this general racial setting, but also in that of the Caucasoid people, of which they form an element, and to discuss them in that complex of peoples which involves north Africa as well as Europe.

The first thing to be made clear is that while Malta today is a warm Mediterranean country, with a dry northern Africa lying immediately to the south, this was not the real situation when the first of the Maltese began to settle in these islands. North Africa was a far less hostile region than it is today, and the climate must have been somewhat cooler. The second factor, which must ever be before us, is that when we think of North Africa we have not to think of Black or Negroid Africa. "African" today is treated as synonymous with Negroid. So much so that there are all kinds of propaganda efforts being put out to suggest that since "African" is Negroid, then the Libyans and Ancient Egyptians, being also Africans, were Negroids! The fact of the matter is that the ancient name of the continent of Africa is that which was applied to what is now North Africa. This was a White, or Caucasoid, region of the world, and, at least to a very large extent, still is. There are Negroid elements, but they are mainly in the lower social classes, and are the result of Arab slave traffic in the past.

Before going on to discuss the settlement of the various racial elements in Malta, it is desirable to state what are the main branches of the races with which we shall have to deal. These are recognised as being characterised by certain definite traits. While these are the characters which most impress when we see any of these populations, they are not invariably those of every member of the race concerned. There is a degree of polytypy in all stocks, as in all living things. That is, there is variation from the average type, which is the classical form of that race or group. Thus, where the Nordic is concerned, the impression is overwhelmingly of a light haired, light eyed, and fair skinned, stock. This does not mean that all Nordics have yellow hair, bright blue eyes, and very light skins. There will be deviation from this type. But that deviation will not be so great that it includes black hair, brown eyes, and sallow swarthy skins. The variation itself is not usually due to racial crossing, unless some very distinctive evidence indicates that that has occurred, but is because of that constant variation which arises, through genetic mutations, so that no stock absolutely conforms to a master pattern, or mould, of identical individuals. We can only find such absolute uniformity in identical twins. The members of each racial group, for all that there is a certain degree of polytypy, will come very close to a common master pattern.

The descriptions which I am now about to give should be understood in the light of those remarks. While aware of a minor degree of variation, we are able, for all that, to describe the principal Caucasoid racial groups. These form the basis of the various peoples who have, from time to time, appeared in, or near, the Mediterranean basin, and so become elements which have had a greater or lesser impact on the Maltese Islands. These groups are:—

The Nordic. This is characterised by tall stature. Five feet eight inches is an average which is to be expected, and it will probably become higher as living conditions are improved. The Nordic is rather long legged for Europeans. It has a tendency to lighter, rather than heavier, bodily form. The stock has a long face, with fair hair, fair skin, and light eyes, which are blue or grey. The nose tends to be long rather than short. The proportions of the skull are *dolichocephalic* — that is, the skull when viewed from above is narrow and long. The supraorbital ridges are reasonably well developed. The jaw is not heavy and square, although

at the same time, it is well developed. The blood groups found in this population are, in such as the ABO series, mainly A and O.

The Mediterranean. At the southern climatic extension of the Caucasoid races we have the Mediterranean racial stock. In general bodily build, this is very much like that of the Nordic. It is not too much of an exaggeration to say that in structure it is a more feminine type of Nordic. That is, the bones are lighter and generally smoother in form and outline. The proportions of the skull are much the same, although it should be observed that G. Sergi, in his extensive study of *The Mediterranean Race* has made many classifications on the basis of the shape of the skull, quite apart from its relative length to breadth. The essential difference between the Nordic and the Mediterranean is in the short stature, (about five feet four inches in the males) the dark eyes, hair and sallower skin. The blood groups tend to be A and O as in the Nordic.

The Atlantic Race. Most writers in the past have confused this with the Nordic. This is the racial element which seems to be largely responsible for the men of the Magdalenian period, in the upper palaeolithic. It is found mainly distributed along the west coast of Europe and in western North Africa, and occurs in the Canary Islands. It is, perhaps, seen at its most typical in Ireland. In the ABO blood group series it is marked by a predominance of the O group. It is interesting to observe that we know the Irish were settled in Iceland before the Norsemen. Today many Icelanders are clearly Atlantic in type. What is more the O blood group is characteristic of the Icelandic population. So despite the history book saying that when the Norsemen came in they wiped out the Irish Christian civilisation, they evidently did not.

In my opinion these are the three basic Caucasoid stocks, and I am inclined to think that the other Caucasoid races have some element of crossing with an early Mongoloid type to have produced the broad skulled Europeans. This view is not generally accepted. The broad skulled Caucasoids are looked upon as mutants. However, while I do not deny that mutations could have arisen which favoured the evolution of a broad-skulled group of races in Eastern Europe and Western Asia, my view is that when an actual *cline* is found, as in this case, which shows a gradual transition from a broad-skulled centre in Asia to a long-skulled one in Western Europe, it pre-supposes that crossing is involved, even if it does not entirely account for the origin of the brachycephalic type. I would look, therefore, to western Asia as a region in which the crossing between Caucasoid and Mongoloid occurred, which produced a series of racial breeds, which had something to do with the creation of some of the elements to be found in the broad-skulled white races. I will readily admit, however, that these stocks are basically Caucasoid, since selection would appear to have bred out most of the Mongoloid traits, excepting those which have influenced the breadth of skull and face, and also some of the characteristics to be found in the blood groups. The Mongolian blue spot found among people in Eastern Europe would favour my theory.

The broad-skulled Caucasoid races are:—

The Alpine. This stock is located throughout the higher lands of central and eastern Europe, and is found as a significant part of the population as far west as central France. It is characterised by a broad skull, broad face, short stature, in comparison with the Nordic or Atlantic, and a heavy build. The hair and eyes are dark, and the skin tends towards the sallow. Although no hard and sharp lines can be drawn socially, it can be said that the peasant societies of the countries of eastern and central Europe, and of France, tend to be Alpine in character. This is largely because the conquering peoples, dating from the *Völkerwanderung* period, were mainly of the Nordic type, and this type tends still to be more heavily represented in the aristocracies of those countries than any other. My own view is that it is probably more closely related to the Mediterranean than either of the

other two long-skulled Caucasoid races.

It might also be observed that since the central European countries tend to be mountainous, this is a type which is to be associated with mountainous country, and that is why it was given the name Alpine in the first place. It is entirely erroneous, as some once thought was the case, that the strain was created by a mountainous environment, although it might be better adapted in some respects to that kind of habitat. That the broad skull was not the result of mountainous environment is proved by the fact that the mountainous countries of Norway and the Highlands of Scotland all have been inhabited by long skulled peoples.

The Dinaric. This is another broad-skulled stock. It differs from the Alpine in being tall, and having a long face with the short skull. In build it is very much the same as the Atlantic race, being big-boned and heavy, as distinct from the lighter build of the other tall Caucasoid stock — the Nordic. In complexion it is similar to the Alpine. It has, however, a marked characteristic in the high bridge to a long nose. The so-called "Roman", is in fact a Dinaric type of nose. Its area of characterisation is the Dinaric Alps but it is found throughout north-eastern Italy, in Austria, Bavaria, and elsewhere. It certainly is to be found in Spain, and it is not unimportant in Malta. In my opinion, the so-called *Beaker Folk* who invaded Britain in the second Millennium B.C. belonged mainly to this stock. The type is to be found with a fair frequency in Aberdeenshire.

The Armenoid. This race has a broad skull and a long face, as in the case of the Dinaric, and also a high bridge to a long nose. It differs from the Dinaric nose because, whereas that race produces the so-called "Roman", the Armenoid produces the so-called Jewish type of nose. This is not confined to the Jewish stock, but is found wherever the Armenoid type is well-represented in the population, as among Parsees in India, the Armenians themselves, many people of Anatolia, and, in a marked degree, among many of the Arab peoples of Palestine and Arabia in particular. It is also a marked feature among many groups of Pakistanis. The nose is aquiline but also has curved-round alae. Judging by a mask from Carthage of the fifth century B.C. there was some of this strain in the Carthaginians.

Another feature of the Armenoid is the tendency to a high dome shaped skull. This is particularly seen among many Kurds. The Armenoid stock is heavily built but not tall like the Dinaric. There is also a tendency towards a greater degree of apparent flat-footedness, in that there is a less springy step than in the other Caucasoid races. The complexion is dark, with dark hair and eyes.

In contrast with the Dinaric, it is my view that whereas the cross with a broader skulled strain and the Nordic and Atlantic, produced the Dinaric, in the case of the Armenoid the same stock crossed rather with the Mediterranean long heads to create what I regard to be the racial-breed which we find in the Armenoids.

East Baltic. This stock is another heavily-built broad-skulled one which is characterised by a short stature and broad face, similar to that of the Alpine. It differs from the Alpine in that the skin, hair, and eyes, are all light. The eyes tend to be a very light blue, much lighter than in the average Nordic, and decidedly lighter than in the Atlantic (which tends to have a deeper blue than the Nordic). The hair is so light that it is almost a white type of yellow, and comes close to the colour which one sees in the albino as found among the Negroids.

The distribution of the stock is in north-eastern Europe, round the shores of the Baltic Sea, in eastern Germany, and penetrating right into Russia to the Urals.

The combination of considerations arising from this distribution and the type itself, rather suggests that there might have been a cross with some protonordic stock, perhaps helped by selection to produce the necessary light colouring for a people living originally in even more severe cold environmental conditions than those in which the Nordics evolved.

Arctic or Chancelade. In the palaeolithic period the Chancelade type existed in Europe, and elsewhere, in the arctic

conditions of the Ice Age. It is characterised by a narrow skull, but with very narrow nostrils. It rather suggests that it was some offshot from the evolving proto-Nordic stock, which became more adapted to very severe conditions. This stock hardly exists today, as it appears to have been absorbed into others. Among some Anglo-Saxon skulls a few have been found with Chancelade characteristics. It is possible that elements of this strain became absorbed into Arctic peoples such as the Lapponoids, and even the earliest Eskimoid tribes — although these are now all basically Mongoloid.

These, then, are the basic stocks into which anthropologists in the past have divided the Caucasoids. Each one seems to have had its own area of characterisation during its evolution in the northern hemisphere. Later, after migration into Europe, each has tended to come to occupy regions where each type is the dominant one. This is indicated by the distribution maps of racial traits. Therfore, to the extent that such races are associated with specific parts of the Caucasoid world they can be called geographic races. But the borders are much more blurred, and considerable interbreeding has taken place where there has been the impact of one of these races on others. Nevertheless, for all that, these divisions are valid. All (with the exception of the Chancelade, which has disappeared) represent types which have marked hereditary characteristics which have persisted as racial stocks to our times.

I have not burdened you with anatomical detail and figures, because these can be found in the easily obtained textbooks of classical anthropology, and, in any case, they make for a very dull exposition of the subject. I have used anthroposcopical methods instead, and described to you what each stock looks like. This is a method which I have long advocated as more practicable outside the laboratory than the anthropometric methods. This is especially so now, when we have a very fine tool in the camera. Even in handling large populations it can be used to obtain both the average types and the deviations. By overprinting many photographs of a population on top of each other we can arrive at the type which predominates in the stock with which one is dealing. The blurred edges give us the degree of deviation from the average. If these are narrow the population is very nearly homogeneous.

Some have divided the Mediterranean into a western and eastern section, and I think there is some justification for this. Thus the Mediterranean racial type, found in Palestine, Irak, Arabia, and as far away as India, tends to be different, in some measure, from the European Mediterranean. This has some importance for Malta since it is this eastern type of Mediterranean which overthrew the Roman and European civilisation of North Africa. Consequently those later Mediterranean racial elements coming from North Africa will show some differences in type from earlier European Mediterranean in the Maltese population.

These, then, are the groups which form the complex of the Caucasoid races, and it is against this background that we have to approach the ethnological problems of Malta.

The Prehistoric and Historical Evolution of the Maltese

I have dealt with the prehistoric development of Malta at some length, as some of you may have read in *Scientia*. Therefore I do not consider that it is necessary to go over that field in detail. It is sufficient merely to pick out the main developments as they affect the ultimate racial type of these islands.

Ghar Dalam People

Between about 3800 B.C. and 3600 B.C. we have the *Ghar Dalam* people. They belonged to an early Neolithic stock which was settled in Italy, Sicily, and Malta. There is no evidence that Palaeolithic man occupied Malta. Had he been settled here he would probably have been either of the Neanderthal or the Magdalenian types — the latter being ancestral, in my opinion, of the Atlantic race. The reason why we conclude that these earliest Maltese belonged to the stock

found in Sicily and southern Italy, at that time, is because their pottery was almost identical with the impressed ware from Sicily, which is there called the Stentinello type.

The colonisation of Malta was not African in origin but European and eastern Mediterranean from the start. The Stentinello people belonged to a stock which had its origin in the eastern Mediterranean. They can be traced from Greece, and may have come from the Middle East. In the Near East this culture was brought to an end by the arrival of the much more evolved cultures of Tell Halaf and Samarra, a little before 4000 B.C. (Margaret Guild, Sicily: An Archaeological Guide, Faber and Faber, London, 1967, P. 36). This is where our Civilization first began in the Fertile Crescent of the Euphrates valley. We can assume that these people were of the Mediterranean race at this time, and, if so, it follows that these first settlers in Malta were of the same stock.

Skorba and Zebbug Cultures

The next culture which appears in Malta is that which started about 3600 B.C. and is called the Skorba. This, again, is thought to have come from Sicily and so probably involved the same racial stock as that of their predecessors. By 3200 B.C. we have reached the *Zebbug* period of Maltese prehistory, which is also the change from the Neolithic to the Chalcolithic — from the late stone age to the copper age.

Mġarr and Ġgantija Cultures

By 3000 B.C. we are in the *Mġarr* period, which was quickly followed by the *Ġgantija*. This is important as up till then there had been a dependence upon Sicily. Now, however, the pattern of the connections is different. By this time this central part of the Mediterranean had passed under the influence of peoples from the eastern Mediterranean such as those of Greece and the Aegean. By the time this archaeological period had ended these influences from the east had come to be an integral part in the culture of Malta. Any strain from the eastern Mediterranean is likely to have had some Armenoid, as well as Mediterranean, elements in it.

However, the relations with Sicily and beyond to the north would probably involve quite another racial influence from that which we have been tracing. There are evidences in the culture of contact from lands of the Western Mediterranean, and in the megalithic buildings there is reason to see the influence of peoples associated with megalithic techniques and religious ideas elsewhere. Since we have a string of Megalithic civilizations from Sardinia westwards as far as the British Isles and beyond, which are to be associated wholly, or in part, with the Atlantic race, it would seem that there must have been some of this racial stock in the early Maltese population. We have already seen that the Atlantic is a tall and heavily built type, and this could have accounted for Homer in the "Odissey" still carrying, by that time, the tradition of a race of giants (Phoenicians) as being the earliest inhabitants of Malta. This matter I have dealt with at greater length in *The Ethnology of the Maltese Islands* in *Scientia* (Vol. 33, 154).

The result of this is to suggest that at one stage the ancient Maltese were an Atlantic-Mediterranean people, and in racial characteristics must have had some affinities with the race of that name described by Deniker. I have suggested elsewhere, that the genetic isolation of Malta had much the same effect on early man as it had on the fauna, and consequently this type degenerated in stature, and thus lost one of the principal characteristics of the Atlantic, which is its tall and heavy stature.

Tarxien Cemetery Period

By the time we come to the Tarxien Cemetery Period, 1800 B.C. (or according to others 1500 B.C.) ,a new civilization characterised by the introduction of bronze and the cremation of the dead, had taken possession of the islands. There is a radical change of religion, and with it, in all probability, a new racial

element was involved. Since some look to its ultimate source as the north-eastern Mediterranean and Anatalia (Troy and Cilicia) it seems clear that this element must have been of a different racial type. One would would incline to assume that such people had Mediterranean and Armenoid elements, perhaps with some Nordic.

The Borġ in-Nadur and Baħrija Periods

The Borġ in-Nadur period (1400-1200 B.C.) appears to have brought in warlike elements associated with Sicilians and Italian elements of culture. If so, this may well have meant more Mediterranean, accompanied perhaps by some residual Atlantic elements as well. By the time we come to the Baħrija period (1000 to 800 B.C.) we have the arrival of another martial people. The probability is that they were Mediterranean with some influence from Dinaric or Nordo-Armenoid.

As there are many elements in the civilisation which show megalithic culture affinities, it means that there must have been, even if indirectly, a constant trickle of Atlantic strains, entering into the Maltese amalgam. Up to this time the Maltese appear to have been Atlanto-Mediterranean with some additional Armenoid, Nordic and Dinaric infusions.

Phoenician Period

From 800 to 218 B.C. Malta passed under Phoenician domination, much of it under their colony of Carthage. Inscriptions of this period are found not only in Phoenician but also in Greek. Phoenician stock appear to have been a cross-bred Mediterranean-Armenoid with some element of Nordic, and the Greek was more pronouncedly Nordic. However, the Phoenicians were probably only people belonging to the official classes, and the Greek were trading elements. It is doubtful if either materially affected the genetic type of the Maltese people which had been established throughout the preceding millennia.

The Roman Period

The Romans extinguished Punic authority in Malta by 242 B.C., and by 218 B.C. Malta had become a Roman colony under Roman law. The Roman influence would be largely official as in the case of the Carthaginian, yet so far as it influenced the ethnology of Malta it would introduce Nordic and Dinaric strains.

At the collapse of Roman rule there is the possibility that the Vandals may have made a settlement, and, if so, this would have reinforced the Nordic in the Maltese population. The Vandal period was succeeded by interludes of Roman rule, including that of the Byzantine Empire, which would add nothing new to the existing racial matrix.

The Arab invasion

Then in 870 A.D., the Arabs overthrew the Byzantine power, the local population having slaughtered the Byzantine garrison, and became the masters of these islands until ejected by Roger the Norman in 1090 A.D. This appears to have been a dark period in Maltese history, but we have reasons to believe that Maltese and Greek Christian communities survived in the islands. In so far as the Arabs influenced the genetic character of the Maltese, which would have occurred through some of them becoming Christians on the defeat of Islam by the Normans, as well as to a certain amount of promiscuity, it would have reinforced the Mediterranean element. This would be mainly from the Eastern Mediterranean branch of that stock. With it would come in some Armenoid, and so far as any Berber elements were involved, some Atlantic.

The Norman Conquest and the Angevin and Aragonese successions

One result of the Norman conquest was that Malta, having become a Christian country, began to receive refugees from Christian communities under Islamic rule. Among these were such as the Melchites from Palestine. If in those days the Melchites were in any way similar to those of today, then, as I have pointed out elsewhere, they are largely a Nordo-Dinaric people, who are still to be found in the hills of Galilee.

The Norman conquest would lead to the implantation of a Nordic element in Malta in the way of nobles and officials. As a fief of Sicily Malta would be successively under Norman, Angevin and Aragonese influence. This would reinforce the Nordic element all the time, with some accompanying Dinaric, especially from Spain. The coming of the Knights of St. John did little to change this situation from an ethnological point of view.

The Order of St. John

As far as the knights were concerned they tended to be French, Spanish, Italian, and Portuguese, and since they were derived from the aristocracy, would tend to be Nordic. Consequently, in so far as they and their followers had any effect on the local population it was to reinforce that element which already existed in Malta.

Another fact is that when the Knights settled in Malta they brought with them their own civil service, and many of these appear to have been Greek. This may account for such surnames as Grech — but as there were Greek Christian communities tolerated under Moslem rule, some of them may come from an earlier Greek origin. The Greeks genetically are a matrix of Mediterranean-Dinaric-Nordic origin, and so no new element was added by these people, whether they came in earlier, or were brought in as part of the following of the Knights. If the latter, they may have been Rhodeans, and in so far as they were, an Armenoid element woull be involved.

With the passing of knightly rule in Malta there came a considerable British settlement, so that British surnames are to be found among the Maltese population as a whole. Thus Prof. Griffiths of this Department has a Welsh surname, Prof. Craig had a Scottish surname. To that might be added such other surnames as Harding, Strickland, and Montagu, which are English, Littlejohn, which is Scottish, and so on. There are also some German names amongst persons who have been long settled in Malta, perhaps from the time of the last Grand Master, Hompesch, who was a German, and also some French and Spanish names. Such names as Sciclu-na are of Spanish origin. All these elements must have brought in some Nordic especially the Scottish elements. The Germans and Spaniards would introduce Nordic and Dinaric. A little Alpine would be derived from some of the settlers.

The Synthesis of Maltese ethnology

If we stand back and try to analyse what all these elements have brought to the Maltese population, we realise that, while, in Malta, may well be found genes of all the major races of the Caucasoid stocks of Europe, nevertheless, the basic matrix is Mediterranean. With it will be found an early Atlantic element, and a superstructure composed of Nordic, Dinaric and Armenoid. There is very little Alpine, and no East Baltic as far as one can see. This is the stock which we would expect to find on the basis of its historical ethnology.

When we come to study the Maltese population, we find that it largely conforms to these facts of historical ethnology. We find a distinctly Mediterraean population, but one which has traits, in certain areas or classes, of the main intrusive racial elements which have been brought in during five thousand years of settlements and conquests. The Dinaric type is found quite well marked in some of the middle classes. The light eyes occur in areas where they indicate some old intrusions of Nordic or Atlantic, and in certain classes where they indicate a later origin.

There is one feature of Maltese ethnology which cannot be too strongly stressed. I believe that the Maltese are one of the most intensely inbred populations which I have ever studied. This has led to a constant reduplication of types. It might not be going too far to say that one could set out to classify the Maltese population in about six facial and physical types. This would indicate that the genetic segregation involved is working on a relatively few intrusive elements. The population is not a mongrel one, derived from innumerable and different infusions, but one which is firmly based on the Mediterranean type with just that

amount of infusion of other Caucasoid strains which has enabled, in the course of genetic segregation and assortative mating, a restricted number of specialised types to appear in the population. For instance, there is a type of Maltese, mainly found in the middle classes, which shows clear affinity with that Dinaric type which one finds among the Spaniards. In Spain it is one which tends, perhaps, to have more Nordic genes than in Malta, where it is more a Dinaric on a Mediterranean basis — nevertheless, the relationship is perceptible.

This inbreeding over such a long period of settlement, confined to a very small land area, must have made for selection to have acted much more effectively than would have been the case in a greater land-mass. Therefore, just as the mammals grew smaller in Malta during the period immediately prior to the settlement of man, so selective forces in the same direction have affected man — and this would account for the fact that the Maltese Mediterranean type tends to be smaller than the average Mediterranean elsewhere.

Thus far I have spoken throughout of the Maltese as a Caucasoid people. On the facts I see no reason to think otherwise. However, it is obvious that, under Moslem rule, where slavery prevailed, and then under the Knights who were taking Moslems prisoners, a slave population grew up in Malta. This we must now consider briefly before concluding this survey of Maltese ethnology.

The Arabic civilisations have always been avid slave-raiders, until recent years, when the traffic has been largely put down by the European powers, as a result of their control of the seas during the nineteenth century. While the Arabs would take slaves from any sources, including the coasts of Europe, their most fruitful sources were in Africa itself. Such slaves tended to be Cushitic (such as Nubians), Nilotics, and Negroes. This introduced into the slave classes of all Islamic countries a black population, derived from one or the other of these Melanoid stocks. Some of these slaves must have been introduced into Malta during Islamic rule. When the Knights became the effective occupying power their galleys brought back Arab captives, and, among them, some of their slaves.

Therefore, there must have been a slave element in Malta which was partly of Black racial origins. This, however, would not have as marked effect on the ethnology of Malta as might be thought at first sight. In days before the concepts of the welfare state, natural selection was fully operative, and this meant that it was eliminating as fast as they were created, elements in the population which, for one reason or another, were not successful, and unable to compete equally with the rest, whatever was the cause of that inequality, whether genetic or social. The die was heavily weighted against successful survival for any black-skinned slaves who found themselves in Malta, or in any other European country for that matter. This accounts for the fact that in Malta today there is very little trace of Negroid genes in the population as a whole. Occasionally one sees them, mainly in the lowest social classes, but one would expect that, in course of time, even these will disappear completely, as conditions are against a successful establishment of a non-Caucasoid stock in a country where people are so clearly adapted to the geographical environment in which they have been so long settled. In a similar way, to digress for a moment, this must be the ultimate outcome of the heavy Negroid settlement in the United Kingdom at the present time. Nature will, in the course of time, eliminate it, as it is not suited to the geographical habitat into which it has thrust itself.

Because of the fact that all races, and all racial amalgams, in order to survive must be in harmony with the regions in which they settle, Malta will always remain a predominantly Mediterranean racial land, since natural selection is weighted in favour of that race in preference to other stocks less well adjusted to to the environment. I noted, for instance, when I made a study of Sicilian ethnology, that although historically the Normans

were probably the most significant single element in Sicilian history in the Christian era, yet on all the lowlands of Sicily the type had practically been extinguished, and it only seemed to survive more or less successfully in the higher mountain areas of that country. A futher digression which will reinforce this point, and which will be of interest to Maltese in particular, is the case of Australia. The sub-continent ranges from tropical in the north to Mediteranean in the south. Speaking generally it is an environment which is not ideal for Nordic settlement for a long period of time. I expect, therefore, that in the course of time, selection will be in favour of the more Mediterranean elements and against the Nordic Thus the Mediterranean strain which occurs in England (although the English are more Nordic than Mediterranean) and the intrusive Mediterraneans, such as the Maltese, who have been settling in Australia in big numbers, will, in the end, come to breed more successfully in such an environment, than the type which settled in Australia in the first place. Perhaps a thousand years from now Australia in racial type will be much more a Mediterranean country, with many of the characteristics we now associate with the Maltese populations, than a Nordic one.

I have said that the Maltese are basically a Mediterranean people, and will remain such. Nevertheless, since there is a certain amount of genetic segregation on a social basis, especially in the middle and upper classes, where the population is typically less Maltese, because of intrusive races such as Dinaric and Nordic, it is unlikely that these stocks will be bred out. The very fact that these intrusive genes belong to classes best able, for social reasons, to survive, they will tend to survive such as they are today. On the other hand, if these intrusive genetic strains had formed the former slave class, and now were mainly the under-privileged, their survival would be very much in doubt.

I have said nothing, so far, about mental and emotional qualities associated with races. This is too large a subject to go into it in this lecture. I mention it here only so that I should have made the point that, in the study of races, we are not confined solely to those phenotypic qualities which we see readily as racial traits, whether we are evaluating them anthroposcopically or anthropometrically. We must remember that there is a whole range of data of an intellectual and psychological nature. This, in part, depends on brain structure, which I have gone into at some length in my paper on this subject entitled *Practical considerations which are fundamental in Bantu Affairs in Rhodesia and for an Understanding of Negroid-Caucasoid Problems Generally*. This affects intelligence qualitatively and quantitatively. It is easiest to estimate and evaluate where we are dealing with the major specific stocks of mankind. Where we are dealing with races within any major stock, such as the Caucasoid, differences, on *a priori* assumptions alone, must be very much less well-marked, and so the more difficult to classify. On the other hand, on the basis that there are differences between the major stocks in these respects, there must be differences, if nothing like so marked, where the various races within a specific stock are concerned. This has always been a general belief from common, what I would call, folk observation, and theoretically I see nothing fundamentally unsound in such views, although I may dissent from the claims which may be made concerning the actual qualities of each of the races concerned.

The reason for mentioning this is to emphasise that there are temperamental differences due to these genetic causes, and so the qualities of mind and character, which are observed in any very old nationality, such as the Maltese, is not something which is just the product of the culture and the environment, but is something which is inherent within the stock. I have no doubt that the generally held belief in the basic artistic aptitudes of the Mediterranean peoples is true, as true as that thrusting dynamism is equally characteristic of the northern European peoples. At some stage there should be a study of the Maltese people in respect of their intellectual and emotional qualities.

This brings me to the statement that I think the time has come for a study of the Maltese people in depth. R. N. Bradley wrote *Malta and the Mediterranean Race* in 1907. This was an early attempt, which has some merits, and should not be brushed aside too brusquely. There have also been other discussions on the Maltese, all of which have varying degrees of merit.

Nevertheless, none of these carries the investigations far or deep enough. A proper study of the Maltese is called for, and it seems to me that this is something which I can properly commend to your society, and for this department within the competence of this centre of learning, and I hope that you will be responsible for initiating it, and lending your weight to it to bring it to a successful conclusion.

I have given you the *a priori* reasoning, on the basis of which we know in a general way, what to expect from a survey, but now we want to have the factual evidence which will, I have no doubt, confirm what I have elaborated, modifying and amplifying it, in this or that respect, as the investigations delve deeper than I have been able to do.

My view is that such a survey should rest primarily on the physical data. That is, that an anthropometrical survey is needed, both of the fossil evidence and of the living population. This should be supplemented by an anthroposcopical one carried out scientifically, and not just by the methods of casual observation, on which I have had to form my judgement.

Side by side with such work there should be a survey of the blood groups, or hand-printing, dermatoglyphics, and tasting tests. Information collected by the blood banks could be of help if integrated with such a work.

At the same time there should be intelligence testing by more than one system. Culture free tests, and those based upon diagrams should be used, as well as the normal tests used by educationalists and sociologists for their investigations. Encephalographic studies should be called upon to give us some idea of the electrical discharges of the brain. In the purely anatomical field some conception of the brain volume and weight in relation to stature and body weight should be investigated, and in particular the degree of development of the frontal lobes, the cortex, and the supragranular layers of the brain. Anthropological studies are particularly deficient of data in these important fields, although they have a very important bearing on intelligence, and on the quality of intelligence.

Inherent aptitudes should be included in such a survey. For instance, Havelock Ellis was able to show in his study of *British Genius* that the most important school of English painting was the East Anglian, and it was in this very region that from the middle ages to the present there had been a high degree of artistic craftsmanship and architectural ability. The work of Nathaniel Weyl, which I have published from time to time in *The Mankind Quarterly*, an association has been shown between certain stocks, certain classes, and even certain surnames, with particular types of ability. While he found the Jews, Scots, and Dutch, as evincing the highest intellectual records in the United States, he also found that bearers of English surnames, which in the middle ages indicated a person was of a literate class (such as Clark in all its variants, Draper, and so on), still were highest in ability among persons with English surnames in America — due, no doubt, to assortative mating through the ages.

These studies suggest that in any survey in Malta use should be made of such facts. It would be of interest to see how all the data, when analysed on a territorial, class, and surname, basis differed. Even in a country such as Malta there are fairly well-marked regional characteristics. It is not necessary to go as far as Gozo to observe this. Zurrieq has a well defined type, and a more than average degree of blue and grey eyes. This would suggest that the results should be classified parish by parish.

At the same time the data should be analysed by social classes. This might well be done by trades and professions. In addition, since you have a well-defined titled nobiliary class which has not been the subject of recruitment for a long time

now, this again should be investigated, to see how far it betrays any differences, in its genetic characteristics, from the mass of the Maltese people.

Surnames certainly should be the subject of careful analysis. Malta has probably the most restricted list of surnames of any country in Europe, not excluding the Celtic peoples who, because of the clan system, tend to have fewer surnames than the other linguistic groups. The performance of bearers of these surnames in intelligence tests, and any differences they may have of an anthropological nature, should be carefully analysed. It may well be found that certain names have an association with a certain physical appearance and particular mental qualities, which in turn are related to certain social levels and vocations. For instance, it would surprise me very much if there were not an association between the Armenoid type, the Lebanese, and Near Eastern, and certain surnames in Malta, referring to types of livelihood. In India I found it possible to recognise, with a high degree of accuracy, people of different castes.

What would be of particular interest would be to see how far the farming classes, as they exist today, conform to the original Maltese type.

The study of the people of Gozo would be a particularly interesting one. It is said that the Arabs carried off all the inhabitants. Such statements are usually an exaggeration, but it might be possible to throw some light on this, if Gozitans proved to have a higher than normal deviation from the average data of the people of the mainland.

Since so many non-Maltese have now settled among you, a large proportion of whom will, in time, become Maltese, as has always happened in the past, some regard to their types might well be worthy of some investigation. Even where the British who have settled among you are concerned, we do not really know their types and nationalities. I suspect that most of them are English, as the Scots do not seem to have settled in any number, which also applies to the Irish and the Welsh. However, we simply do not know these facts, and cannot until a widespread investigation is carried out.

Certain anatomical peculiarities may be evaluated by such an undertaking. You will find reference, time and again, to the *steatopygy* to be observed in early Maltese statuettes, which is followed, by its being alleged to be a well-marked trait of Maltese women. These statements I do not accept. The only steatopygous females whom I know are the Hottentot, Bushmen and Andamanese women. Both the European Paleolithic female figurines, and those of the neolithic of Malta, are simply models of fat women — not steatopygous females. The fat Maltese women, to whom reference is made by such observers, are entirely of the same type, but are not steatopygous. In far ancient times, and even among the Arabs at present, stout women were admired. This was also the case down to the 17th century even in northern Europe, as such portraits as you find of those periods indicate. In the survey which I am recommending anatomical examination would settle once and for all this steatopygous allegation, which I do not believe is, in any way, true at all.

As I envisage it such a survey, while it must rest on an anatomical basis, must call upon the assistance of many other disciplines. Malta is, however, sufficiently small, its institutions sufficiently advanced, and the conditions so ideal for such an investigation, that I believe that Malta could produce an account of the people living in it, past and present, which would be a model of how such investigations should be made, and how the synthesis to be derived from the data, should be presented.

I commend this work to you and to the university, and I hope that you may be able to see your way to carry it out in the course of time.

QUESTIONS

Prof. J. L. Pace:

You mentioned that in the region of Zurrieq one finds a number of fair individuals who are fair-haired with blue eyes. I also notice that in Malta there are quite a few people who are black-haired with

blue eyes. How does one account for this group of people differing from the more generalized type? People of the present generation seem to me to be much taller and even fairer when compared with those of two or three generations back. I wonder whether you have the same impression?

Col. Gayre:

As regards these pockets of lighter-eyed people, I think we would have to make an investigation there to find out why they are so, and I would not like to venture an opinion at this stage without an investigation. I've heard various theories but they are rather like the theories one has for the western Highlands of Scotland. Whenever they find a Mediterranean type, they say of course he is descended from the shipwreck of the Spanish Armada! Well, the Mediterranean was there a thousand or more years before the shipwrecks of the Spanish Armada. Folk explanations I would prefer to put aside until one has carried out an investigation thoroughly.

As regards the black hair and blue eyes, this is interesting because this is the characteristic of the Atlantic race. The Nordic is fair-haired with light eyes, while the Atlantic is black-haired with blue eyes. This is in fact the type I would expect to find in Malta where there has been such a well-developed Megalithic civilisation because throughout Europe the Atlantic race is always found in association with a Megalithic civilisation.

As regards stature, this is relative between various races; there are tall, short, and intermediate races, and of course there are the very short races, such as the pygmies. But all these races can benefit to a degree by nurture. Although by nature they may have a normal standard, with better nurture children grow quicker and taller so that they become taller than their parents. Of course, under bad conditions they would go down again. However, you will never make a bushman, for example, no matter how good the conditions, grow into a tall Norwegian or Scot, in stature, because there are limits.

As regards the colouring, this of course I have not been long enough among you to observe, as I've only lived in Malta for about 5 years, but you must remember that in the earlier days malaria and other diseases were picking out and killing off in childhood the more Nordic, the fairer; but with the development of a better medical system more equally applied to the population as a whole, those children who would normally have died early in life tend to survive. And so you would get a situation in which one would expect a lightening of the colour, to some degree, to take place though it would never displace the dark hair of the Mediterranean type.

Prof. V. G. Griffiths:

How much skeletal material from prehistoric times is available for study at the National Museum? How much of the 7,000 skeletons excavated from Hal Saflieni are still available?

Mr. C. Mallia:

Not all the 7,000 skeletons were actually found whole at the Hypogeum and this number was calculated from the amount of skeletal material found in a small unit volume and is therefore an average figure. The material from the Hypogeum is practically the only pre-historic material we have except for the contents of occasional specimens found in our collections or are on exhibition. The best 6 skulls from the Hypogeum are on show at the National Museum. As far as I am aware only parts of skulls are on exhibition in Gozo. It is said that one must have at least 500 skeletons for an anthropological study so that we still have not enough material for such a study, though as Col. Gayre said, one can make assumptions, at least from the associated archaeological material, such as pottery. The situation is different when we consider the stage of literate civilisation in Malta, viz. the Carthaginian and the Roman tombs, where significant parts of the human skeleton have been found. All this material is always available to the Department of Anatomy for any research purposes necessary.

Prof. V. G. Griffiths:

I seem to get the impression that Gozitans have a typical appearance, rather undefinable, which one could call "a Gozitan face", and which is probalby due to the marked inbreeding which occurs there.

Col. R. Gayre:

There is quite an erroneous idea that inbreeding is a bad thing; inbreeding is only bad if the stocks you are inbreeding are bad as this would result in a quick reproduction of the bad types. Where, however, the stock is normal and healthy, then inbreeding is not only not bad, but probably an advantage. With the Maltese one is dealing with normal and good stocks which, because of the inbreeding, have by class, probably by name and surname, and certainly by regional characteristics, developed their own types. You get this in all countries: for example, in Scotland you can often tell an Aberdonian by his appearance, and, in England a Yorkshireman. There is the same situation in Malta though in a much smaller area of land than either England or Scotland.

Unidentified speaker:

Diabetes is a very common condition in Malta. As the cause of diabetes is known to be genetically dependent, do you feel that the local increased incidence could be due to excessive inbreeding?

Col. Gayre:

Theoretically yes, inbreeding could influence the situation, though a specific investigation would be required to see if that is in fact the case. After all, the incidence of malaria, to give an example, among certain African tribes is related to to the particular blood groups to which they belong. Heterozygotes for the sickle-cell gene have a selective advantage in relation to this disease. If, therefore, in the stocks contributing to the Maltese amalgamation there is a relationship of a gene to diabetes, then, either inbreeding people with this gene would increase its incidence; or, if it occurs in the heterozygotes, then cross breeding between the types would increase the occurrence. Obviosly, here is a fruitful medico-ethnological field for investigation.

Mr. C. Mallia:

This brings us to the end of Question Time, and as Chairman, on behalf of everyone here, I must thank Col. Gayre for his most interesting talk. Col. Gayre has this evening given us a blueprint on which the University, particularly the Department of Anatomy, and those of the National Museum who are engaged on archaeological studies can work in the future. Thank you very much.

The following two papers were read at the 53rd Annual meeting of the Società Oftalmologica Italiana held on the 26th-29th September, 1971.

THE ELECTROCAUTERY SCLEROCORNEAL PUNCTURE IN THE TREATMENT OF THE GLAUCOMAS
A Ten Year Survey

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Summary

This is a survey covering a ten year period of cases of glaucoma operated upon by means of the sclerocorneal electrocautery puncture. The technique of the operation is a very simple one. It does not involve any complication. The results were very satisfactory.

It seems that von Graefe was the first to notice a filtering scar in cases of glaucoma operated upon by a basal iridectomy. Subsequently, de Wecker, convinced that a filtering scar was the solution for the reduction of tension in chronic glaucoma, suggested a combination of sclerotomy and iridectomy. However, it was left to Lagrange in 1905 to place on a firm basis a filtering operation for glaucoma, by devising his operation of sclerotomy and iridectomy. In 1909 Eliott simplified the technique by introducing the use of trephine. Preziosi (1924, 1929, 1950, 1957) carried simplification a step further by using the electrocautery to obtain a filtering cicatrix communicating the angle of the anterior chamber with the subtenoconjunctival space.

The main advantages of the use of electrocautery are the simplicity of the technique and the absence of any complications. The three main complications, viz. delayed formation of the anterior chamber, hyphaema and injury to intraocular structures are conspicuous by their absence.

Here is a brief description of the operation.

The conjunctiva and Tenon's capsule are incised at the same time, about 8mm from the limbus. A teno-conjunctival flap is dissected in a funnel-shaped fashion down to the sclerocorneal border, which is defined by a few strokes of Tooke's knife. One must be certain that the operation is going to be performed on the surgical limbus. The tip of the red hot electrocautery measuring 0.5mm by 0.25mm is gently applied to the sclerocorneal junction until aqueous starts to flow out of the burnt-in hole. Dissection around the aperture is kept to a minimum in order to avoid cicatricial changes which may possibly block the fistula.

On no account is the tip of the electrocautery ever to be allowed to enter the anterior chamber. Iridectomy is performed by the electrocautery only when the iris prolapses into the hole. This usually happens if an attempt is made to reduce the constriction and rigidity of the iris by stopping pilocarpine and diamox some days before the operation. In subacute cases of glaucoma, the iris, because of the fairly high intraocular tension presents itself at the bottom of the aperture and iridectomy is performed. Decompression of the anterior chamber happens very slowly. This explains the absence of

hyphaema and of any damage to the optic nerve in cases with residual field of vision. In many cases the anterior chamber is not completely lost during the operation. In the majority of cases when the tenonconjunctival flap is accurately stitched in place by a lock stitch, the anterior chamber is almost completely restored and there is already a small draining bleb.

Control of postoperative inflammatory reactions and avoidance of posterior synechiae is obtained by means of subconjunctival injection of corticosteroids such as Depo-Medrone and the instillation of homatropine.

The fistula is kept open by the cicatricial retraction of the cauterized wall of the aperture ,and by the continuous flow of aqueous out of the eye. The end result after three weeks is usually a whitish round bleb varying in size from 3 to 4mm.

A comparison with Scheie's (Scheie 1958, 1959, 1962, 1965) operation — peripheral iridectomy with scleral cautery — first described in 1958, will not be out of place.

In this operation filtration depends also upon the retraction of the cauterized wall of a sclerocorneal incision. However, it is obvious that the trauma is more extensive, as numerous applications of the cautery have to be carried out an a corneoscleral incision about 6mm long.

Failure of prolapse of the iris into the wound is not uncommon and the introduction of other instruments into the anterior chamber is often necessary to perform an iridectomy. Hyphaema is not at all rare.

"The most frequently encountered and wearisone complication was delayed formation of the anterior chamber" (Scheie: 1962), so much so that the injection of air is often required.

This complication seems to be more common in cases of chronic open angle glaucoma.

It is probably true that the late reformation of the anterior chamber is an important factor in the appearance of lens opacities following glaucoma surgery. The obvious cause is excessive filtration through a too large incision and numerous cautery applications. The latter through excessive heat, may possibly cause damage to intraocular structures, such as the lens.

One hundred and fifteen eyes with chronic open angle glaucoma were operaten upon in our clinic during the period 1960-1970. 102 cases were males and 13 females. The incidence of chronic glaucoma was much higher in men than in women. There were four cases of Juvenile Glaucoma, one of them suffering from Naevus Flammeus.

All these cases presented extensive field losses and deep cupping. Surgery was resorted to because of continuous field loss in spite of medical treatment.

Tension was brought under control and except in the very old there was no further field loss. There were some cases where subjective improvement of vision was claimed. Treatment with miotics was continued in juvenile cases.

In some cases visible filtration gradually disappeared. However, there was no accompanying elevation of tension. Lens changes were observed, some years after surgery, in cases aged between 65 and 70 years. Four cases of infection of the draining bleb were recorded. They were soon brought under control by antibiotics and corticosteroids without any damage to the eyes.

During the same period, fifty three eyes — in eleven males and fortytwo females — suffering from acute and subacute glaucoma were operated upon because of failure to respond to medical treatment. There were four times as many females as males. Relief of tension was immediate.

It is important to place the fistula on the surgical angle of the anterior chamber. This is not always a simple matter because of the congested state of the eye. In two cases, failure to do this was followed by blockage of the fistula by a process of the ciliary body. In another case tension started to rise again in the two operated eyes because of gradual blockage by connective tissue of the fistulae. It was necessary to operate again, this time on quiet eyes. Filtration has been good for the past two years.

CHRONIC GLAUCOMA

Males

No.	Name	Age	Pre op. T.	Post op. T.	Date
1.	X.J.	55R.	35	20	1960
2.	X.J.	55L.	38	18	,,
3.	B.M.	38	40	20	,,
4.	B.M.	38	42	22	,,
5.	C.A.	59	40	18	,,
6.	C.A.	59	42	15	,,
7.	D.M.	50	40	20	,,
8.	D.M.	50	35	15	,,
9.	G.M.	70	38	12	,,
10.	M.M.	63	40	15	,,
11.	B.J.	70	37	12	1961
12.	B.P.	68	39	23	1962
13.	B.A.	47	33	17	,,
14.	B.S.	79	35	21	,,
15.	C.S.	70R.	35	20	1963
16.	C.S.	70L.	33	17	,,
17.	V.	51	33	19	,,
18.	B.	48	38	20	1964
19.	B.	48	37	18	,,
20.	B.J.	69	35	21	1965
21.	B.V.	73	36	20	,,
22.	C.N.	74	39	21	,,
23.	D.P.	70	32	17	,,
24.	G.T.	44	39	23	,,
25.	B.S.	62	38	21	,,
26.	F.A.	60	32	17	,,
27.	S.F.	71	33	10	1965
28.	A.E.	62	40	18	1966
29.	A.S.	72	32	15	,,
30.	A.D.	77	35	10	,,
31.	B.S.	59	33	15	,,
32.	C.P.	74	35	20	,,
33.	C.C.	75	39	22	,,
34.	C.J.	55	40	21	,,
35.	D.J.	51	45	20	,,
36.	D.F.	69	28	14	,,
37.	F.J.	60	31	12	,,
38.	F.M.	45	32	12	,,
39.	F.M.	45	30	12	,,
40.	C.P.	76	37	42	,,
41.	C.	68	35	20	,,
42.	Z.J.	69	36	20	,,
43.	C.J.	80	38	15	,,
44.	A.C.	66	35	12	1967
45.	C.P.	76	40	19	,,
46.	B.J.	70	33	20	,,
47.	B.J.	77	35	23	,,
48.	C.E.	32	40	22	,,
49.	C.J.	59	35	20	,,
50.	G.S.	78	30	15	,,
51.	M.J.	67	30	18	,,
52.	S.M.	73	35	12	,,
53.	S.M.	73	33	14	,,
54.	V.A.	71	35	21	,,
55.	V.A.	71	34	10	,,
56.	M.G.	73	35	21	,,
57.	M.G.	73	35	20	,,
58.	B.J.	55	38	22	,,
59.	Z.J.	70	35	15	,,
60.	B.A.	32	34	10	,,
61.	B.G.	77	38	10	,,
62.	A.N.	77	35	15	1968
63.	B.C.	65	30	15	,,
64.	C.T.	78	30	19	,,
65.	C.C.	81	30	45	,,
66.	F.J.	63	37	19	,,
67.	G.E.	43	40	20	,,
68.	G.E.	17	40	30	,,
69.	M.E.	68	35	22	,,
70.	P.J.	21	40	22	,,
71.	S.J.	75	30	22	,,
72.	Z.T.	63	33	13	,,
73.	A.J.	50	35	21	,,
74.	A.J.	50	36	20	,,
75.	A.S.	72	40	23	,,
76.	C.T.	7	40	25	,,
77.	C.J.	79	40	22	1969
78.	M.J.	79	35	21	,,
79.	M.	43	40	19	,,
80.	M.	43	40	19	,,
81.	S.F.	71	33	20	1969
82.	E.P.	74	30	12	,,
83.	G.M.	76	30	12	,,
84.	D.	79	31	12	,,
85.	G.G.	55	51	24	,,
86.	F.	65	33	15	,,
87.	M.	63	35	12	,,
88.	G.	69	40	15	,,
89.	G.	75	40	19	,,
90.	F.N.	73	30	15	1970
91.	V.J.	79	28	10	,,
92.	C.A.	66	35	20	,,
93.	D.C.	67	30	12	,,
94.	A.V.	69	35	10	,,
95.	D.S.	56	40	21	,,
96.	P.M.	63	32	21	,,
97.	A.M.	67	35	22	,,
98.	V.F.	74	31	19	,,
99.	G.J.	78	36	20	,,
100.	C.J.	54	40	20	,,
101.	M.L.	27	39	22	,,
102.	Z.L.	70	39	15	,,

Females

No.	Name	Age	Pre op. T.	Post op. T.	Date
103.	S.C.	76	40	12	1964
104.	F.	68	35	12	1966
105.	F.S.	50	40	12	1967
106.	P.G.	58	35	20	,,
107.	A.L.	52	35	13	,,
108.	B.P.	36	38	20	1968
109.	C.J.	63	30	10	,,
110.	F.C.	60	35	20	1969
111.	F.Z.	58	38	15	,,
112.	M.F.	77	33	21	,,
113.	T.S.	17	45	30	,,
114.	A.G.	73	35	12	1970
115.	M.M.	67	41	18	,,

ACUTE GLAUCOMA

Males

1.	G.	42	53	20	1963
2.	M.	65	62	21	1964
3.	P.C.	66	50	20	1966
4.	C.C.	76	54	17	1967
5.	F.A.	69	42	17	,,
6.	C.M.	65	45	12	,,
7.	P.V.	67	53	15	1970
8.	B.E.	56	46	17	,,
9.	P.	58	60	15	,,
10.	C.	50	40	20	,,
11.	A.	66	60	20	,,

Females

12.	T.M.	69	50	21	1962
13.	D.P.	74	46	17	,,
14.	D.G.	64	48	20	,,
15.	E.J.	64	50	30	,,
16.	A.J.	62	60	24	1963
17.	V.M.	64	64	20	,,
18.	G.C.	53	50	20	1967
19.	B.G.	57	45	17	,,
20.	S.M.	41	50	20	,,
21.	G.F.	56	40	21	,,
22.	G.R.	62	35	20	,,
23.	Z.A.	54	49	25	,,
24.	Z.A.	54	50	30	,,
25.	D.	48	38	15	,,
26.	M.M.	73	45	23	,,
27.	B.P.	67	40	22	1968
28.	M.M.	73	45	17	,,
29.	M.M.	73	50	20	,,
30.	M.R.	65	50	17	,,
31.	S.J.	53	50	35	,,
32.	S.J.	56	38	16	,,
33.	Z.A.	55	35	19	,,
34.	B.	36	50	23	,,

No.	Name	Age	Pre op. T.	Post op. T.	Date
35.	F.	62	50	35	,,
36.	F.L.	79	60	30	1969
37.	F.M.	69	50	20	,,
38.	F.M.	69	55	24	,,
39.	B.	45	50	20	,,
40.	B.	45	55	17	,,
41.	C.G.	56	45	20	1970
42.	D.M.	64	65	23	,,
43.	D.M.	64	60	18	,,
44.	M.M.	73	50	21	,,
45.	A.J.	73	45	20	,,
46.	S.J.	58	42	18	,,
47.	S.J.	58	40	15	,,
48.	M.M.	56	45	22	,,
49.	G.	70	55	21	,,
50.	B.M.	56	50	18	,,
51.	Z.A.	57	35	20	,,
52.	C.G.	70	45	21	,,
53.	F.E.	47	53	16	,,

DIABETIC HAEMORRHAGIC GLAUCOMA

Males

F.J.	59	1966
S.	52	,,
B.J.	50	1968
C.J.	75	,,
B.M.	70	1969
C.S.	66	,,
C.A.	59	,,

Female

P.	57	1969

APHAKIA

Males

H.	65	60	30	1969
C.	70	40	25	1968

Female

D.J.	49	40	22	1968

HAEMORRHAGIC GLAUCOMA ASSOCIATED WITH THROMBOSIS CENTRAL RT. VEIN

C.	68	1969
M.	28	,,

HYDROPHTHALMIA

Four cases.

The use of corticosteroids by instillation, by mouth or by subconjunctival injection has been found very useful in the control of the inflammatory reactions associated with congestive glaucoma.

Four cases — three male and one female — of rise of tension in aphakic patients were operated upon. A good result was obtained in two cases. One case was operated upon three times. In the other one it was necessary to control tension by miotics. The cause of the failure was thought to be the presence of vitreous in the anterior chamber. Four children aged about 1 year were operated upon for Hydrophthalmia. One case was a failure. A good result was obtained in the other three cases.

In the severe rise of tension accompanying diabetic Haemorrhagic Glaucoma, cyclodiathermy was associated with electrocautery punctures to control the severe pain and avoid excision of the eye. Eight patients, seven males and one female, were treated in this manner.

In the same way two cases of absolute glaucoma were operated following thrombosis on the central retinal vein.

A considerable number of cases operated upon for chronic open angle glaucoma and acute glaucoma ,were suffering from diabetes mellitus. In no case was any sign ever found of proliferative retinopathy. This seems to be in consonance with Becker's (1970) suggestion that elevated intraocular pressure might protect the diabetic patient from the changes associated with Proliferative Retinopathy.

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MUSCULAR REINFORCEMENT IN CONVERGENT STRABISMUS OBTAINED BY SCREW-LIKE TWISTING (TORSION) OF THE EXTERNAL RECTUS TENDON

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Summary

Fourty one cases of unilateral convergent strabismus and three cases of divergent strabismus were operated upon by the technique suggested by Malbran.

Most of the cases had shown a severe degree of amblyopia and weakness of the External Rectus.

In this technique, the muscle is twisted around its longitudinal axis the required amount of turns according to the degree of deviation, and attached again to its original insertion. There is no cutting of the muscle tendon.

The results were very satisfactory, showing a marked strengthening of the action of the External Rectus.

It is suggested that in order to obtain reinforcement of an ocular muscle, resection should be replaced by a screw-like twisting of the muscle.

Malbran (1965) suggested that muscular reinforcement of the ocular muscles could be obtained by twisting the muscle tendon on its axis and attaching it again to its insertion. Twisting is accompanied by shortening and strengthening of the muscle. However, he did not produce a report on the results of cases treated by this particular technique.

Between 1966 and 1970, fortyone cases of concomitant convergent squint and three cases of divergent strabismus were operated upon in our clinic using this technique.

What follows is a report on the results obtained so far.

The main difference between this technique and the older ones is that whereas in a resection or tucking (including the O'Connor Cinch operation, which is basically a tuck) a portion of the muscle is cut off and taken out of action, in the torsion technique the whole muscle, including the vitally important tendon is spared.

The advantages claimed for this technique are that it is a simple operation, carried out without any mutilation of the muscle tendon. The latter is attached to its original insertion without any displacement. If necessary, the torsional effect can be undone. There is no narrowing of the palpebral fissure and no pulling in (Enophthalmos) of the eye ball, as often happens after a severe resection of the muscle. There is a marked strengthening of the action of the weak muscle.

It is considered that a shortening of 6mm is obtained as a result of one turn and 12mm when the tendon is turned twice. When this is translated into degrees of deviation: one turn is necessary to correct 15-25 and two turns to correct angles varying from 25-35. A full recession of not more than 5mm is always carried out at the same time on the direct antagonist.

Some minor alterations to the original Malbran technique were adopted in this series of 43 cases.

Two whip stitches sutures (plain catgut n. 3/0 single armed, an eye curved 16mm needle) are passed transversely,

respectively through the upper and lower third of the Lateral Rectus 3mm from its insertion. No muscle forceps is used. The upper suture is clamped into artery forceps.

The muscle tendon is not cut flush with the insertion. A very small fringe of tissue is left, in order to render easier and firmer the reattachment of the tendon to its original insertions.

After the necessary amount of twisting has been performed, a solid reattachment is ensured if the whip stitch sutures, after passing through the fringe of tissue at the insertion are passed again through the cut muscle tendon and tied down. One must pay particular attention to the possibility of the torsion undoing itself during this phase of the operation.

The age of the patients varied between 3 and 20 years. The majority of cases suffered from unilateral concomitant strabismus. The angle of deviation varied from 25 to 40. A considerable number of cases showed a marked degree of amblyopia. In a good number of cases, there was a weakness of the movement of the external rectus of the amblyopic eye. All patients had their refraction corrected. Orthoptic treatment was carried out whenever possible.

Three cases had been operated upon once before. Four cases had a vertical component besides the convergence. Twentynine cases presented amblyopia of various degree. (Visual acuity did not respond to treatment either because the patient was too old to occlude, or, in two cases, because of abnormalities in the media or because of nystagmus).

Results were satisfactory and encouraging. In twentythree cases, the angle of deviation was completely corrected. In ten cases, there was some residual convergence. The cosmetic result was, however, very good. In five cases, the convergence was still noticeable. There was consecutive divergence in three originally convergent cases.

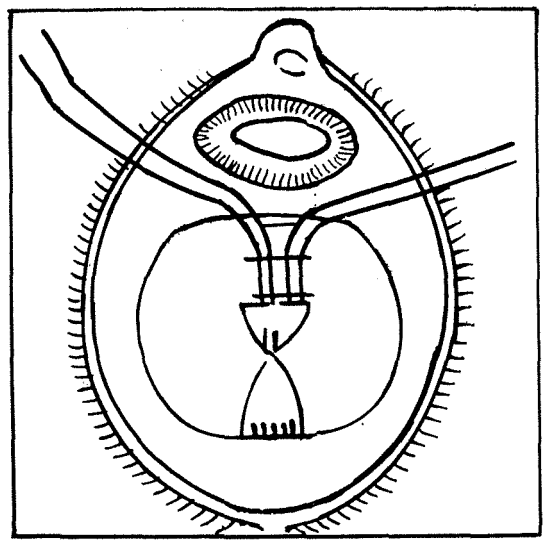

Fig. 1. Torsion of Internal Rectus muscle along its longitudinal axis.

In the three divergent cases operated upon by this technique, there was still some residual divergence.

As regards binocular vision, it was present in eleven cases, partial in 6 cases and completely absent in 27 cases.

In all but 2 cases, there was marked strengthening of the action of the External Rectus.

(See Tables overleaf.)

Acknowledgement

I would like to acknowledge my indebtedness to the orthoptist at St. Luke's Hospital, Mrs. J. Bonnett, who has devotedly examined, treated and followed up all these cases.

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POST OPERATIVE REPORT

Name	*Age*	*Sex*	*Refraction and vision with glasses*	*Angle of Deviation pre-operative with glasses*		*Ocular Movements*
1. P.J.	20	M.	R. +3.0 D.S. L. +3.0 D.S.	6/9 6/24	+30°	Underaction of Left lateral rectus
2. J.C.	20	M.	R. +4.0 D.S. L. +4.00 D.S. +0.50 90	6/6 6/24	+25°	Underaction of Left lateral rectus.
3. L.M.	11	F.	R. +2.5 D.S . L. +2.50 +0.50 90	6/6	+35°	Underaction of Left lateral rectus
4. S.M.	13	F.	R. +2.0 D.S. L. +2.0 D.S.	6/9 6/6	+30°	Full movements
5. A.M.	3	F.	R. +1.50 D.S. L. +1.50 D.S.	6/6 6/60	+30°	Marked underaction of left external rectus
6. M.E.	13	F.	R. +2.00 D.S. +0.50 90 L. +2.00 D.S. +0.50 90	6/9 6/12	+35°	Marked underaction of left lateral rectus Elevation of left eye on adduction
7. A.J.	9	M.	R. +1.00 +1.50 90 L. +1.00 +1.50 90	6/12 6/24	+30°	Marked underaction of left eye Elevation of left eye in adduction
8. B.A.	6	F.	R. −1.0 D.S. L. −1.0 D.S.	6/60 6/18	+35° R/L	Underaction of Right lateral rectus Elevation of Right eye on adduction

Surgery	*Angle*	*Ocular Movements*	*Cover Test*	*Cosmetic State*	*B. V.*
Left lateral rectus torsion 1½ turns	+4	Full	N.A.D.	Good	Not present
Left lateral rectus torsion 1½ turns	0°0	Full	N.A.D.	Excellent	Present
Left lateral rectus torsion 1½ turns	0°0	Full	N.A.D.	Excellent	Present
Right lateral rectus torsion 1½ turns	+5° — −5°	Full	Slight convergence/ divergence	Good	Nil Had bilateral medial rectus recession
Left lateral rectus torsion 1½ turns	+5°	Full	Manifest (L) convergence	Satisfactory Still L.C.S.	Nil
Left lateral rectus torsion 4 turns	+6	Full	N.A.D.	Good	Present
Left lateral rectus torsion 1½ turns	+6	Full	Slight manifest (L) convergence	Good	Suppression
Bilateral medial rectus recession Right lateral rectus torsion 2 turns	+5 R/L	Full Nystag-mus	Slight manifest (R) convergence c (R) hypertropia	Residual R.C.S .	(R) Suppression

Name	*Age*	*Sex*	*Refraction and vision with glasses*	*Angle of Deviation pre-operative with glasses*		*Ocular Movements*
9. B.P.	12	M.	R. +5.0 / +2.0 L. +3.0 / +0.50	6/12 6/6	+35° R/L	Underaction of Right lateral rectus
10. P.A.	7	M.	R. +3.5 L. +3.5	6/60 6/6	+30°	Underaction of Right lateral rectus
11. C.T.	20	M.	R. +1.0 L. +3.0	6/6 6/60	+25° R/L	No movement of Left lateral rectus
12. P.C.	5	M.	R. +1.0D.S L. +1.0 DS	6/60 6/6	+35° R/L	Poor fixation Right eye Underaction of Right lateral rectus
13. Z.A.	15	F.	——— R. ——— L.	6/6 6/6	−30°	Alternating divergence Poor convergence
14. C.R.	10	F.	R. +6.0 L. +6.0 / +1.0 90	6/6 6/36	+35° R/L	Full
15. B.D.	15	F.	R. +0.50 / +2.50 L. +0.50 / +1.00	6/12 6/6	+40°	Underaction of Right lateral rectus
16. P.T.	5	M.	R. +1.50 DS. L. +1.50 DS	6/6 6/36	+30°	Poor movement of Left lateral rectus
17. M.V.	9	M.	R. +2.00 D.S. L. +2.00 D.S. +1.00 D.C. 90	6/6 6/9	+25° L.C.S.	Underaction of (L) external rectus
18. D.P.	3	M.	R. / L. } +3.00 D.S. / +0.50 D.C. 18°	6/18 6/9	+25° R.C.S.	Underaction of (R) external rectus

Surgery	*Angle*	*Ocular Movements*	*Cover Test*	*Cosmetic State*	*B. V.*
Right lateral rectus torsion 2 turns	0° without glasses +15° c gls.	Full	N.A.D. c gls. R.C.S. c gls.	Cosmetically good	Present
Right lateral rectus torsion 2 turns	+5° c. gls.	Full	N.A.D.	Good	(R) Suppression
Left lateral rectus torsion $1\frac{1}{2}$ turns	0° c gls.	Full	N.A.D.	Good	(L) Suppression
Right lateral rectus torsion 2 turns	0°	Full	N.A.D.	Good	(R) Suppression
Right medial rectus torsion 2 turns	−10°	Convergence Insufficiency	R. D.S.	Satisfactory	Nil
Left lateral rectus torsion 2 turns	0°	Full	Slight R.C.S.	Satisfactory	(L) Suppression
Right lateral rectus torsion 2 turns	0°	Full	N.A.D.	Excellent	Good B.V.
Left lateral rectus torsion 2 turns	+5°	Full	Slight L.C.S.	Good	(L) Suppression
Left medial rectus recession Left lateral rectus torsion $1\frac{1}{2}$ turns	0° c gls.	Full	N.A.D. c gls	Excellent	Present
Right internal rectus recession Right lateral rectus torsion $1\frac{1}{2}$ turns	0° c gls.	Full	N.A.D. c gls.	Excellent	Present

Name	*Age*	*Sex*	*Refraction and vision with glasses*	*Angle of Deviation pre-operative with glasses*		*Ocular Movements*
19. A.S.	6	M.	R. } +1.00 D.S. / L. } +1.00 D.C.	6/6 6/6	+25° L.C.S.	Full
20. N.A.	6	F.	R. +0.25 / −0.75 L. −3.50 / −1.75	6/6 6/60	+30° L.C.S./ A.C.S.	Underaction of (L) lateral rectus
21. M.S.	$2^{3}/_{12}$	M.	No gls. Ref. within normal	Too young to test	+25°	Underaction of (L) lateral rectus
22. C.D.	3	F.	R. +1.50 / +1.50 90 L. +1.50 / +1.50 90	Too young to test	+35° 40°	Underaction of (L) lateral rectus
23. C.M.	10	F.	R. +3.00 / +0.50 L. +4.00	6/6 6/18	+35°	Underaction of (L) lateral rectus
24. A.F.	17	F.	+0.50 / −1.50	6/60 6/6	+30° R.C.S.	Full
25. D.V.	8	M.	Refraction within normal limits	6/24 6/6/	+35° R.C.S.	Full
26. M.C.	5	F.	R. +2.50 L. +2.50	6/9 6/60	L.C.S. +25°	Full

Surgery	*Angle*	*Ocular Movements*	*Cover Test*	*Cosmetic State*	*B. V.*
Right internal rectus recession Left lateral rectus torsion 2 turns	+15° c gls.	Full	Manifest Left convergence	Improved but still convergent	Not present Had (R) medial rectus recession previously
Left medial rectus recession Left lateral rectus torsion 2 turns	0° c gls.	Full	N.A.D.	Excellent	(L) Suppression
Left medial rectus recession Left lateral rectus torsion 2 turns	0° c gls.	Full	N.A.D.	Excellent	Too young to test
Left medial rectus recession Left lateral rectus torsion 2 turns	+10° c gls.	Full	Manifest Left convergence L.C.S.	Still convergent but improved	Not present
Left medial rectus recession Left lateral rectus torsion 2 turns	0° c gls.	Full	N.A.D.	Excellent	Weak
Right medial rectus recession Left lateral rectus torsion 2 turns	0° c gls.	Full	Slight manifest (R) convergence	Good	(R) Suppression
Right medial rectus recession Right external rectus torsion $2\frac{1}{2}$ turns	+5° c gls.	Full	N.A.D. for distance R.C.S. for near	Good	(R) Suppression
Left medial rectus recession Left external rectus torsion 2 turns	+5°	Full	N.A.D.	Excellent	(L) Suppression

Name	*Age*	*Sex*	*Refraction and vision with glasses*	*Angle of Deviation pre-operative with glasses*		*Ocular Movements*
27. A.E.	10	F.	R. +1.50 / 88 L. +1.50 / 10°	6/6 6/60	L.C.S. +45°	Underaction of (R) lateral rectus
28. A.T.	4	M.	R. +4.00 L. +4.00	6/18 6/24	L.L.S. +15°	Underaction of (L) lateral rectus
29. B.E.	7	M.	R. +3.00 L. +3.00	6/6 6/60	L.C.S.	Underaction of (L) lateral rectus
30. G.J.	20	M.	R. Slight hypermetropia L. but no glasses ordered	6/9 6/5	+45°	Underaction of (R) lateral rectus
31. M.M.R.	9	F.	R. +2.50 L. +1.00 +2.00 / .10	6/9 6/9	+35°	Underaction of (R) rectus
32. C.P.	10	F.	No glasses	6/6 6/36	+40°	Full
33. A.J.	8	M.	R. +2.50 +0.50 / 17° L. +2.50 +1.00 / 65	6/6 6/12	+35°	Full
34. B.A.	8	M.	R. +1.5 L +1.5	6/36 6/9	+35°	Full

Surgery	*Angle*	*Ocular Movements*	*Cover Test*	*Cosmetic State*	*B. V.*
Left medial rectus recession Left lateral rectus torsion $2\frac{1}{2}$ turns	+10°	Full	Slight manifest (R) convergence	Satisfactory but still convergent	(R) Suppression
Left medial rectus recession Left lateral rectus torsion $2\frac{1}{2}$ turns	+2°	Full	N.A.D.	Good	Weak
Left medial rectus recession Left lateral rectus torsion $2\frac{1}{2}$ turns	+5°	Full	Manifest (L) convergence	Good	(L) Suppression
Right medial rectus recession Right lateral rectus torsion 2 turns	+5°	Full	Manifest (R) convergence	Good	Present
Right internal rectus recession Right external rectus torsion $2\frac{1}{2}$ turns	0°	Full	N.A.D.	Good	Present
Left internal rectus recession Left external rectus torsion 2 turns	+3°	Full	N.A.D.	Excellent	(L) Suppression
Left internal rectus recession Left external rectus torsion 2 turns	+5°	Full	N.A.D.	Excellent	Present
Right medial rectus recession Right lateral rectus torsion 2 turns	+5°	Full	Slight manifest (R) convergence	Good	(R) Suppression

Name	*Age*	*Sex*	*Refraction and vision with glasses*		*Angle of Deviation pre-operation with glasses*		*Ocular Movements*
35. F.M.T.	1½	F.	$\frac{-1.50}{-1.50\ 18°}$ — $\frac{-1.0}{-1.0\ 18°}$		6/ 6/	+35°	Underaction of (R) eye on abduction
36. A.P.	4	M.	+1.5DS Greyish fold on Retina	+1.50DS (L) Lens	6/9 6/60	+35°	Underaction of (L) Medial rectus
37. S.J.	4	M.	$\frac{+0.5}{+0.50}$	$\frac{}{+0.75\ 90}$	6/18 6/6	+15°	Elevation of (R) eye on adduction
38. M.M.	25	F.	−1.0DS	−1.0DS	6/6	6/12 +30°	Underaction of (L) eye on abduction
39. B.J.	5	F.	+1.5DS	+1.5DS	6/18	6/60 +45°	Underaction of (L) external rectus
40. S.F.	6	M.	R. $\frac{-0.50}{+1.50\ 80}$		6/60	6/9 +30°	Underaction of (R) external rectus
41. A.V.	8	M.	+4.5	+4.5	6/9	6/18 +25°	Full
42. G.R.	16	F.	−2.0DS	−2.0DS	6/18	6/6 +40°	Bilateral Underaction Abduction
43. J.L.	14	M.	$\frac{}{-2.0\ 18°}$	$\frac{}{-2.0\ 18°}$	6/9	6/9 −30°	Weakness of Convergence
44. C.A.	22	M.	Had (R) Cataract Extraction Aged 5.		CF	6/6 −30°	Underaction of (R) medial rectus

Surgery	*Angle*	*Ocular Movements*	*Cover Test*	*Cosmetic State*	*B. V.*
Right medial rectus recession Right Internal rectus torsion	+5°	Full	Slight manifest (R) convergence	Satisfactory but still convergent	No B.V. Nystagmus
Left medial rectus recession Left lateral rectus torsion 2 turns	– 2°	Under-action of L. medial rectus	Slight manifest (L) divergence	Satisfactory	No B.V.
Right medial rectus recession Right lateral rectus torsion 2 turns	+5°	Inferior oblique attached to external rectus	Slight R.C.S. c R/L	Good	(R) Suppression
Left medial rectus recession Left lateral rectus torsion 2 turns	– 3°	Full	Slight (L) divergence	Good	No B.V.
Left medial rectus recession Left lateral rectus torsion 3 turns	0°	Full	N.A.D.	Good	(L) Suppression
Right medial rectus recession Right lateral rectus torsion 2 turns	0°	Full	N.A.D.	Good	(R) Suppression
Left medial rectus recession Left lateral rectus torsion	0°	Full	N.A.D.	Good	B.V. present
Left rectus recession Left lateral rectus torsion 2 turns	+10°	Full	Manifest (R) C.S.	Still cosmetically convergent	No B.V. Had bilateral medial rectus rec. 1967
Bilateral ext. rectus recession Medial rectus torsion 2 turns	– 5°	Full	Manifest alternating divergence	Slightly divergent	Nil
Right external rectus recession Medial rectus torsion 2 turns	– 5°	Under-action of (R) medial rectus	Manifest right divergence	Cosmetically satisfactory	Nil

A TRILOGY IN THE HISTORY OF MALTESE DENTISTRY

Tradition — Empiricism — Specialisation

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One of the remarkable features of the history of Maltese Dentistry is the rapid progress that the profession has made within the very short span of its existence as a scientific discipline. I think that the best way to give an idea of this progress from the very lowly beginnings is to focus your attention — in the time allotted to this address — on three main signposts on the road of its evolution, i.e. the phase of tradition, the stage of empiricism and the climax of specialisation.

Tradition

In the not too distant past, the normal process of the cutting of teeth in infants was blamed for quite a number of ailments both in popular belief and in medical circles. These alleged disturbances ranged from itching of the gums and fits of screaming to skin eruptions and convulsions.

The age of six months, which coincides with the time of the appearance of the first teeth, was conceived as being a critical hurdle in the infant's life and a very trying period for his parents. To cut short this stage of development as much as possible and to relieve the parents' anxiety, Maltese countryfolk resorted, as late as the mid-eighteenth century, to the employment of charms in the belief that these amulets brought their supposed potency to bear on the infant's teeth by promoting dentition without trouble. These amulets consisted in small fossil shark's teeth which the parents suspended from their children's necks (1). This belief may have originated from two sources: (a) either from the primitive idea that objects that resembled one another or looked alike functioned alike, so that the strong shark's teeth imparted to the infant the same strength to acquire his new dentition ;or else (b) from the legend that these triangular teeth of the shark, which are found embedded in some of our rocks, were actually the petrified tongue of the Apostle St. Paul who during his stay in Malta in A.D. 60 preached Christianity so fervently to the Maltese that his words (symbolised by the tongue-shaped teeth) penetrated even the hard rock of our Islands.

It is worth noting that a similar custom prevails in Calabria, Italy, where children are made to wear necklaces of pierced animal teeth with the idea of preventing complications during teething (2).

Members of the medical profession were no less concerned about the dangers ascribed to teething. This had been the universally accepted medical thinking since the time of Hippocrates (460-355 B.C.). About one hundred years ago the Maltese physician Dr. Gavino

Gulia, in an annotation in the local medical periodical *Il Barth* (20th April 1872, p. 142) referred to a form of spinal palsy in infants "occurring during the period of dentition" for which he advocated "the facilitation of the eruption of the teeth". He gives no indication as to how this "facilitation" was to be effected but most probably he had in mind the scarification or lancing of the gums — a procedure already mentioned by Pliny the Elder (23-79 A.D.) in the first century of our era, popularised by Ambroise Pare' (1510-90) in the sixteenth century century, recommended by the Father of English Surgery John Hunter (1728-93) in the eighteenth and condemned only as recently as 1963 in America (3).

In 1884 another Maltese physician, Dr. Fabriz Borg, in a booklet dealing with the upbringing of babies, attributed the appearance of a papular rash behind the ears of infants to dentition and suggested the local application of almond oil as a remedial measure.

For the relief of the itching of the gums — which is thought to accompany the cutting of teeth — mothers supplied their children with the so-called teething-ring, a custom dating back to early Egyptian times. The ring was made of ivory or gum elastic and the infant was encouraged to bite it. Sometimes the mother herself rubbed the gums of her infant with the ring to pacify him. The use of this device was widespread during the last quarter of the nineteenth century in Malta and it was still commonly seen up to thirty years ago hanging on a silver chain or cord round the necks of infants together with those other comforters — the dummy or teat and the rattle.

Dr. Fabriz Borg preferred to allow the infant to use his own fingers for the relief of the alleged itching rather than the ring because the fingers were softer and there was no danger of suffocation as might happen with a ring if swallowed. Of course this method had the disadvantage that finger-sucking would become a habit but Dr. Borg had a remedy for that — he suggested smearing the fingers with the bitter juice obtained from the cut leaves of our native plant *Aloe vera* (in Maltese *Zabbara*) to discourage the infant from continuing to place his fingers in his mouth (4).

Teething, apart from being an alleged cause of morbidity, was also regarded as a serious threat to life. Our infant mortality rate is today (1969) 23 per 1000 live births (5) but up to 1939 it was one of the highest in the world averaging 250 per 1000 live births (6). The greatest killer was enteritis. This disorder was, in the words of the Chief Police Physician of a century ago, "particularly common among children during teething". The implication is obvious but in an official report about the mortality of the Maltese Islands in 1874, he was quite explicit when he listed teething as a cause of death among children under five years of age; in fact teething appears among other causes of mortality in children under the main heading of Developmental Diseases. To teething were ascribed 192 fatalities i.e. 4% of the total number of deaths in that year (7). The same notion was current in the United Kingdom where, in 1897, 5% of deaths were attributed to teething (8).

The conviction that difficult teething killed off many of our children was so ingrained in the mind of our ancestors that they have coined the proverb:

Ghan-nejbiet lesti l-kefniet

which means

With the cutting of the first teeth
prepare the shroud (9).

It is of interest to note that the same idea underlies an almost identical Spanish proverb which states that when the child cuts its teeth, death is on the watch (10).

Teething does not appear as a cause of infant deaths in official statistics in Malta at the beginning of the present century (11) but Maltese medical practitioners still blamed it for various ailments among infants. Dr. Roger Busuttil, later Professor of Anatomy at our University, took his colleagues to task in 1906 for resorting to this "frequently unjustified though handy diagnosis" and stressed the need for an adequate appreciation of the real aetiological factors underlying the infant's illness especially if it was of an enteric nature. He remarked that the be-

lief in teething as a cause of death was deeply rooted among the uneducated sections of society and that this prejudice was responsible for much of the mortality amongst children because by focussing attention on dentition it made them disregard the great importance of a faulty diet and of intestinal infection as the real killers of their offspring (12). It must be pointed out that the same prejudice prevailed abroad where it represented the standard medical thinking not only at the time but even much later; indeed the British text-book on the diseases of children which we read as medical students thirty years ago did not exclude teething as a possible cause of bronchitis, convulsions and fever among infants (13). It is not surprising, therefore, that these ideas should linger in the popular mind for many years afterwards. Thus as recently as 1956 a Maltese paediatrician was deploring the fact that teething was blamed for almost any ailment and that the mother used to show the doctor what stage teeth eruption had reached by running her dirty fingers across the baby's gums (14).

Empiricism

The earliest known publication on dentistry by a medical man from Malta belongs to 1636. In that year a Dr. Joseph Cossaeus, Master of Arts and Licentiate in Medicine, chose as one of his subjects for the doctorate thesis at the University of Montpellier the treatment of dental pain (15). He recommends section of the nerve "which runs to the teeth through the auditory meatus". The cut was to be made by a scalpel in the "internal and lower part of the ear". Absence of bleeding and rapid healing of the operation wound were among the advantages claimed for this procedure.

In this short work, dedicated to the Grand Master of the Order of St. John, Jean Paul Lascaris, Cossaeus calls himself *Melitensis* but there are doubts whether he was actually a native of our Island; most probably he described himself so because he might have held an appoinment in the medical service of the Order of St. John which was also known as the Order of Malta; however that may have been, the Cossaeus family had become extinct in Malta by the mid-eighteenth century (16).

In spite of this isolated instance of academic interest in dentistry in the seventeenth century, its practice at that time — and for many years after — was entirely empirical. Extractions and other dental treatments were carried out by surgeons, barber-surgeons and barbers so that dentists as a separate group did not exist.

With the advent of the eighteenth century we come across the first dental practitioners known to us by name in Malta. Almost all of them bear Italian surnames and the little we know about them is derived from the handbills which they distributed or from the scant personal data contained in their applications to the Grand Master of the Order of St. John for the granting of permission to exercise their "art" — as they called it — in Malta.

In December 1733 Gio Batta Grimaldi Francolino, described as being Maltese and who had left the Island in his early years, returned to Malta to practice the "art" of tooth-extractor *(cavadenti)* (17). In November 1730 he was in Vienna where he was granted the "privilegium" by Emperor Charles VI to practice dentistry for six years in the Imperial provinces. In his petition to the Emperor, Grimaldi stated that he had gone to Vienna from Malta, studied at the Academy of Padua, served as a dentist in the Courts at Polonia and at Saxonia, at the Court of Duke Leopold of Lorraine and at Mainz, the seat of the Elector Lothar Franz von Schönborn. He had also practiced for six months in Venice and had received pensions from some German princes. It is not known how long he stayed in Vienna, or when and where he died (18). A contemporary illustration portrays him in a medallion with an imaginary view of Malta in the background. In the centre there is a medicine and instrument case and on each side of it is a folded manuscript with a seal, one inscribed Duke of Wolfenbüttel 1721 and the other, Duke of Lorraine 1725 (19).

The Venetian surgeon Pietro Siveri came to Malta in 1760 and notified the public that he was prepared to extract

teeth at his residence. In a leaflet published from the Malta Government printing press — which was the only printing establishment then in Malta — he also advertised a Greek Balsam which he recommended for the most diverse diseases ranging from headache to wounds, ulcers and worm infestation in children. He also offered for sale an electuary or theriac which was efficacious against poisons, contagions and "all corruptions of the humours of the body" (20).

Another handbill was issued from the same press to advertise a "Cephalic Tincture" prepared by the Italian Royal Dentist Giovanni Ornieri who claimed that his tincture, when instilled in the nose, cured deafness, cataract and toothache. This was in 1765 (21).

The year is important because Ornieri was the first practitioner in Malta to style himself a "dentist". The next man to use the same designation and to refer to his practice as a "profession" was a certain Mauro Gurrini from Bologna who applied for and was granted permission "to exercise and advertise his art" in Malta in June 1772. In his application he claimed that he had exercised his profession in "all the Courts and principal cities" through which he passed and that he was capable of treating all the diseases of the mouth, to clean and pull out teeth and fix artificial ones (22).

The first official mention of the post of dentist in the state medical service occurs in a paylist of the Holy Infirmary at Valletta in 1777 but it is probable that this post had been established at an earlier date. The holder was the barber-surgeon *(Barberotto)* Pietro Rancati who was the least paid member on the medical and surgical staffs of the hospital. In 1795 the post was filled by a certain Carlo Grech who is the first undoubtedly Maltese dentist known to us (23).

We are not aware of the kind of academic training that Carlo Grech may have received in dentistry but we know that at least three publications on this subject were available in Malta in his time (Royal Malta Library):

(a) *Le chirurgien dentiste ou traites' des dents* by Pierre Fauchard (1678-1761) who laid the foundation of modern dentistry (Paris 1746, 2 vols, Second edition).

(b) *Soins faciles pour le proprieté de la bouche et pour la conservation de dents* published by an anonymous *Chirurgien Dentiste du Roi* in Paris in 1757 ;and

(c) *De' morbi de' denti e delle gengie* by G. J. Planck, Professor of Surgery of the University of Buda (Venice, 1781).

These texts deal with the causes of the diseases of teeth and gums, their pathology and their remedial and preventive treatment. The filling of teeth with lead and gold and the provision of artificial dentures are also dealt with especially by Fauchard.

In 1779 we hear of another self-styled dentist — Pasquale Almirante — who was also a "botanist" and the *impresario* of the Manoel Theatre (24).

Towards the end of the century a Neapolitan, Gregorio Magrin, had for many years been living in Malta as a galley-slave and had carried on the trade of barber and tooth extractor. His condemnation to the galleys, however, had prevented him from devoting himself entirely to his dental pursuits for which, "thanks to his ability, he was much in demand". He, therefore, petitioned the Grand Master in December 1795 to free him from the galleys to enable him to earn his living by the exercise of his art. He promised to continue to reside in Malta and his request was granted (25).

This motley group of dental practitioners was succeeded by a better type in the nineteenth century when the Maltese Islands became a British possession and saw many important social, political and medical changes. Dentistry, however, did not alter its pattern in so far as advertising was concerned. The only difference from former times was that instead of distributing handbills, the practitioner availed himself of a new method of publicity, i.e. the newspaper which made its appearance in Malta in the beginning of the nineteenth century. Here is an example of the

advertising methods of the time reproduced *verbatim* from *The Malta Government Gazette* of the 31st May 1837 (p .199):

"Mr. Antoine Isouard, Surgeon dentist, having practised for upwards of twenty years his important profession, in the principal cities of France ,Holland and Italy, has just returned, with the highest and most flattering recommendations, to Malta where he solicits the patronage of the inhabitants during his short stay among them. His long and successful practice has rendered him fully acquainted with all the diseases incidental to the teeth and with the safest and most efficacious remedies to be applied to them.

All persons honouring him with their confidence may rely on a speedy and certain cure.

He constructs entire sets of teeth with the most happy success. By a new process he sets in artificial teeth so as to make it impossible to distinguish them from natural ones, and he corrects without causing any pain, the imperfections of children.

In the drawing, cleansing and preserving of teeth, and the preventing the further decay of those already attacked, the Surgeon's long experience will ensure those who apply to him of being carefully and skilfully attended to.

Antiscorbutic elixirs to cleanse, strengthen and protect the teeth from injury, and dentifrice powders may be had at his house. Mr. Isouard is at present in quarantine but will be in free pratique on the 5th June". He was still at Valletta at the beginning of August (26).

In the following month, there appeared another press notice, this time from a Maltese physician, which stated: "Charles Casolani, Doctor of Medicine, having pursued a course of studies and lectures in Naples, is lately returned to Malta and will henceforth practice as a physician. Dr. Charles Casolani has particularly applied himself to the study of the teeth and practised in Naples duly authorised as a Surgeon Dentist with success (27).

Dr. Casolani (1815-1898) represented the third generation of the Casolani family which originally came to Malta from Bologna in 1777. After qualifying in medicine he spent some time exercising his profession in Turkey. A seal cut in hard stone shows his name in Turkish script — "Casolani the doctor" — and is still in possession of his descendants (28).

In later years Casolani turned his attention away from dentistry and launched out in an entirely different direction by devoting his energies to advocating much needed reforms in public sanitation and agitating for the political rights of the Maltese (29).

Among the early English Surgeon Dentists to practice in Malta was Dr. David Finnie who visited the Island in September 1838 and stayed at a hotel in Kingsway, Valletta, where he held consultations (30). He was again advertising his services in March 1848 (31). He died of typhus in Alexandria, Egypt, on the 27th October 1850 (32). The following year his son, J. Finnie, who was also a dentist, came to Malta and was available daily for consultations at the Circulating Library of Mr. G. Muir, in South Street, Valletta (33).

In April 1839 we hear for the first time of dentures being fitted with springs in Malta. A French dentist from Paris — named Poiron — stayed for a short spell in the Island. Besides performing "every operation belonging to his art", he made sets of teeth which he fitted "with the greatest precision with springs without the help of any ligature" (34). It is of interest to note that the spring retention of false dentures had come into use in the 18th century and George Washington wore one of them (35).

In September 1841 a surgeon dentist from London — Mr. W. Sparkes — was practising from No. 40 Zachary Street, Valletta. His fees, as stated in his advertisement, were: one dollar for scaling the teeth, two to three dollars for each tooth extracted in adults and half a dollar for drawing children's teeth. The "dollar" was known as the "current" or "Spanish dollar" and was equivalent to about four shillings and four pence (4/4d) (36). The name of Mr. Sparkes stands out boldly in the story of Maltese dentistry for he

was extracting teeth under ether anaesthesia in early January 1848. This is a significant landmark for you will recall that ether was first used in dentistry by Dr. William T. G. Morton in Boston on the 30th September 1846, i.e. only fifteen months before (37). Mr. Sparkes left the Island in November 1848 (38).

A release in a local newspaper of November 1845 informed the public that the dentist Antonio Borsini from Rome was scaling teeth and manufacturing artificial dentures at Valletta (92 Old Mint Street). He claimed to be a pupil "of the celebrated Langé of the Parisian school" and that he was "accurately versed in the jeweller's art" which he had learned in Geneva and "therefore works with his own hands whatever was necessary in gold" so as to fix artificial teeth firmly in the mouth. But Borsini was not merely a dentist and a goldsmith; he was also a chiropodist operating in everything relating to the cure and extraction of corns, bunions, defective nails, etc. (39).

In 1850 two surgeon dentists from London, Messrs Cohen and Rogers, advertised the fitting of dentures without springs and wires (40). Most probably they were using plates retained in place by atmospheric pressure — a type of denture introduced early in the nineteenth century in the United States of America by James Gardette and J. P. Scott (1831) (41). Thus the year 1850 marks the eclipse of dental springs in Malta.

The next progressive step in the manufacture of dentures was introduced in Malta by the Maltese dentist Alexander Preziosi in January 1860. This was the use of "vulcanite" in place of gold and platinum plates. He preferred this hard rubber product because it was lighter, more durable and easily adapted to the shape of the gums. His office was at 69, Merchants Street, Valletta (42). "Vulcanite" had been patented in America in 1851 and made use of for teeth attachments in 1859 (43).

Exactly one hundred years ago the first lady dentist — accompanied by her husband who also belonged to the profession — came to our shores. They were a French couple — Mr. and Mrs. Forniér — who called themselves "medical dentists". Mrs. Forniér claimed to have "been honoured with the degree of Doctor by the Academy of Medicine at Paris and by the University of Naples and approved also by the local authorities". She was prepared to pay domiciliary calls "for the treatment of the teeth of Ladies and Children" (44).

Up to 1885 the Public Health Laws of the Maltese Islands were administered by the Police. The first legislative measure for the state control of dental practice and for the protection of the public from incompetent practitioners was taken in 1883. The Police Laws enacted in that year prohibited the practice of "the profession of... Surgeon-dentist" without a licence from the Head of Government (45). You may recall that the state regulation of dentistry in Great Britain had only come into effect five years previously through the passing of the Dental Act of 1878; so that Malta was not lagging far behind what had become the mother-country.

Specialisation

Although the Police Laws of 1883 pointed to a change of outlook with regard to dental practice, the standard of dentistry at the beginning of the present century was far from satisfactory; so much so that the Chief Government Medical Officer had often reported on the lack of proficiency of some dental practitioners (46). It was only in 1901 that Ordinances VII and XVII enforced the production of a certificate from the Medical Board showing that the applicant had obtained a diploma from the University or other specially authorised school in Malta. Those persons, however, who had been allowed to practice dentistry under the provision of an Act of the Imperial Government were exempted from this condition (47).

Basic conditions for regular training in dental surgery first appeared in 1907 when the requirements for the granting of the Diploma in Dental Surgery by our University were laid down by the Statute of that year (Section 237) (48). The candidate sitting for the examination had to

produce certificates showing that he had pursued his studies in dentistry in a recognised institution abroad; had been engaged for four years in professional studies; and had received three years instruction in mechanical dentistry from a recognised practitioner or at a dental hospital. These conditions were confirmed by Article 381 of the statute of 1915 (49). The first candidate to satisfy these requirements and to obtain the Diploma of Dental Surgery from our University was a certain John Eskdale Fishburn in 1918. Between the 7th and 11th November of that year he was examined in Dental Surgery, Pathology and Diseases of the Mouth; Dental Anatomy, Histology and Physiology; Dental Mechanics and Metallurgy. He also underwent a practical and an oral test lasting one hour and was "unanimously approved" (50).

The University remained a mere examining body in the field of dentistry until 1921 when measures were taken to establish a course of studies for the Diploma of Dental Surgeon. It was officially known as the Special Course of Dental Surgery and formed part of the Faculty of Medicine and Surgery. It was open to students in possession of the matriculation of the University or an equivalent examination and the diploma was awarded to candidates who, besides passing examinations in the subjects listed in the Statute, submitted proof that they had spent at least five years in the practice of dental surgery at a teaching school or under a teacher approved by the General Council of the University (51). Most of the subjects were taught by the Professors of the Course of Science and of the Course of Medicine and Surgery either in the ordinary classes for Science and Medicine students or else in special classes held separately for dental students.

A step forward was the appointment of a Surgeon Dentist on the Staff of the Central Hospital at Floriana during the financial year 1922-23 and the establishment of a Dental Clinic at the same hospital which made it possible for students to receive practical instruction without the need of being apprenticed to a private dental surgeon.

While the subjects of the course had been prescribed by Article 22 of the Regulations of 1921, no syllabus had been laid down. The matter was deliberated at a meeting of the Special Council of the Faculty of Medicine and Surgery on the 2nd August 1926 when Prof. Peter Paul Debono, Professor of Surgery, pointed out the expediency of establishing a School of Dentistry in our University. At its sitting of the 24th September, the Special Council resolved that a special teacher be appointed to teach special dental subjects and that he be styled Lecturer in Dentistry.

The topic again come up for discussion in November when a question was asked in Parliament as to whether a Course of Dentistry existed at our University. The Minister of Public Instruction requested the Rector of the University to submit a scheme "financial and otherwise" for the establishment of a Course of Dental Surgery. At a meeting of the Special Council of the Faculty a sub-committee was formed to devise a plan in terms of the Minister's request. Nothing, however, seems to have been done and the matter was allowed to lapse until 1930 when at its sitting of the 17th June the Special Council again appointed another sub-committee to draw up the syllabus within a month's time. The sub-committee submitted its report at the meeting of the 11th December 1930 but the Faculty "decided that the matter be postponed for further consideration". The syllabus was still being debated by the Faculty as late as the 15th May 1931.

Besides this inaction on the part of the Faculty, another hurdle had been impeding progress. The "special teacher" envisaged by the Special Council in September 1926 was simply not available in Malta as none of the dental practitioners then in the Island possessed the necessary qualifications. It was only in June 1930 that a dental surgeon (Mr. Petty) was considered by the Council to possess the necessary requirements to impart instruction in dentistry; but, even so, he was only "recognised in so far as the practical side of dentistry only, i.e. Practical Den-

tal Surgery, Practical Dental Prosthetics and Orthodontics".

The Faculty again reiterated the need for a Lecturer in Dentistry at its sitting of the 33rd December 1930 when Professor Peter Paul Debono, seconded by Professor A. V. Bernard, proposed the following resolution which was unanimously approved: "It is the opinion of the Faculty of Medicine and Surgery that if a Course of Dentistry is to be started in the University, a qualified Lecturer in Dentistry should be appointed and that such teacher should be provided by the Government with the necessary Clinic and Laboratory for the proper teaching, theoretical and practical, of the students" (52).

In fact it was not until 1933 that the first *ad hoc* lecturer in dental subjects was appointed. This was Egidio Lapira who had started his training with Lieut. A. B. Willis Rust, the first Army Dental Surgeon to come to Malta during World War I. Mr. Lapira was the first Maltese candidate — and the second diplomate — to qualify in dentistry from our University in 1922. He later occupied the Chair of Dental Surgery when this was set up in 1943 (53).

In 1935 the students of the Special Course of Dentistry applied to the Faculty of Medicine and Surgery to be granted a degree instead of a diploma in dentistry. The matter was discussed at a meeting of the Faculty on the 28th March but no decision was arrived at. The question was again brought to the fore by the dental students a year later and at its meeting of the 12th November 1936 the Faculty of Medicine and Surgery appointed a subcommittee to study the issue. This subcommittee reported favourably on the 3rd December and proposed the granting of a Degree of Bachelor of Dental Surgery (B.Ch.D.) to persons already in possession of the Diploma in Dentistry of the University of Malta provided that the candidate had attended at least one year's practice in a dental clinic recognised by the University, submitted a written thesis on a dental subject to the satisfaction of the Faculty of Medicine and Surgery and underwent an oral examination of not less than forty-five minutes on the above thesis. These proposals were approved by the Faculty but the Degree of Bachelor of Dental Surgery was not introduced until 1943 (54) when the programme of studies was revised and extended over a period of four years. In the meanwhile, in July 1936, the Diploma of Dental Surgery obtained the recognition of the General Medical Council of the United Kingdom as entitling its holders to register without examination in the United Kingdom as Colonial Dentists in the Dentists' Register (55).

A change of designation from Lecturer to Professor took place in 1943. A further reform in the programme of studies was effected in 1947 when the Diploma in Dental Surgery was abolished and the duration of the course leading to the Bachelorship was increased to six years (56).

The first move to render the Special Course of Dentistry independent of the Course of Medicine and Surgery was made on the 10th October 1932 by Professor A. V. Bernard, Professor of Hygiene, but no conclusion was arrived at on his proposal. The question was again mooted at the sitting of the Faculty of Medicine and Surgery of the 21st February 1938 when the proposal of constituting a Board of Dentistry, separate from the Special Council of Medicine and Surgery, was placed on the agenda. Profsesor A. V. Bernard, however, was prepared to go even further and, prompted by the same forward-looking vision of previous years, he proposed the erection not of a Board but of a Faculty of Dentistry. He was seconded by Professor Luigi Preziosi who held the Chair of Ophthalmology (57). It is to the great credit of Professor A. V. Bernard and his supporter Professor Luigi Preziosi that these far-sighted pathfinders recognised, at a relatively early date, the need for the separation of dentistry from the Faculty of Medicine and Surgery and for setting it on an independent course of development. However, in spite of these initial efforts, matters remained in abeyance until, in later years, the question was revived by Professor Lapira who, in the meantime, had been elected, *Honoris Causa*, Fellow of the Royal College of

Surgeons of England (1948) and Fellow of the Royal College of Surgeons in Edinburgh (1951). His endeavours to raise the status of dental education and training were finally crowned with success in 1954 with the establishment of the Faculty of Dentistry at our University. In recognition of his services the degree of Doctor of Science *(Honoris Causa)* was conferred upon him in the same year by the University (58).

There is another man we must remember with gratitude on this occasion — Professor Lapira's immediate successor in the Chair — Professor J. J. Mangion who was the first Maltese Dental Surgeon to gain the Fellowship of the Royal College of Surgeons of England by examination (1948) and who continued to guide Maltese dentistry in its years of growth and who has shown what notable results can be obtained by a well organised hospital department and co-ordinated team work in dental treatment.

Thanks to these pioneers Maltese dentistry has been uplifted within living memory, from the level of an advertising craft to the summit of a speciality on a par with other specialities of the medical and surgical professions; based on a sound scientific university education, regulated by an ethical code, controlled by a statutory register, honoured by the recognition of its university degree on the part of Great Britain and acclaimed by the dental brotherhood in the international field.

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THE DENTAL HEALTH OF SEVEN YEAR OLD CHILDREN IN MALTA'S STATE-RUN PRIMARY SCHOOLS

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The school dental inspection provides a unique opportunity for epidemiological investigation. It can prove to be a valuable educational experience for the examiner and the examinee alike.

Malta's 93 state-run primary schools enrolled 28,419 pupils in October, 1970. Schools differ widely in size and capacity; 47 children attend Ghemieri Mixed School, and the schools at Hamrun register 2,076 pupils.

Dental disease is seen to occur more frequently in one community than in another. For instance, 24% and 63% of 200 five and six year olds examined by myself in 1969 were affected by dental caries in Naxxar and Luqa respectively.

The opportunity was taken of utilising sessions normally devoted to school inspection and personalised dental health education to investigate the dental needs of seven year old children in towns and villages with school populations in excess of 700. Emphasis was laid on the age of seven years because it is at this age that the accumulated backlog of neglect of dental caries in the deciduous dentition makes its heaviest demands on curative services. The school admitting age is five years and the school child receives one yearly dental inspection during the first two years and another at the end of its school life. An inspection at seven years would serve to evaluate the effectiveness of the school dental programme as it exists. The attendance rate following a school inspection, when no attempt is made to increase demand beyond informing parent through their child that treatment is necessary, is usually around 40%.

Unpublished data from a previous survey (Galea, 1970), show that at this age 50% of

$$\frac{a/a}{ba/ab}$$

have exfoliated. Much of the caries affecting parents through their child that treat- overlooked. Data from the same source indicate that the peak incidence of carious lesions in the anterior interproximal segments of the deciduous dentition (including the mesial aspects of the canines) occurs at the age of five years and is likely to be 14% of the total caries in the mouth.

Objectives of the survey

1. To provide data on the specific requirements for preventive and curative services in different localities on the Island.
2. To obtain objective data which can be used in evaluating the effectiveness of existing dental programmes in eliminating the hazards to dental and general health.
3. To provide guidelines for national action to develop child dental health services.
4. To serve as a pilot study for the continuous collection of information needed by governments to evaluate child dental health services.

Materials and methods

An assistant selected pupils from the school register who were, or were to be, seven years old on the date of inspection. Only those schools with a minimum of 100 seven year olds were included in the survey. The sample consisted of 2,176

children, of whom 1,958 were available for examination. Inspections were performed by one clinician using sickle explorers, plane mouth mirrors, and a 75 watt light source in an anglepoise lamp. Data were recorded by one assistant.

Dental Caries

Standards of Assessment

The examination for caries and the diagnosis of the minimal lesion were carried out according to the recommendations of the World Health Organisation (1962 and 1965).

Indices of caries experience

Summarisation of data is made for each community and for the sexes separately. The report includes the percentage of persons referred for treatment, the percentage of persons with decayed and/or filled deciduous and permanent teeth, the percentage of persons with one or more deciduous teeth filled (f), requiring filling (d), or extraction (i), and with no decayed and/or filled teeth.

Separate data are given for the mean 'def' rate and for 'd', 'i', 'e', or 'f' per person.

The lower case letters 'def' have been used here to indicate caries experience in the deciduous dentition as represented by a summation of teeth which are decayed, teeth (molars) extracted because of caries, and teeth which have received a permanent restoration. A tooth was presumed indicated for extraction (i) when caries had encroached on four or more of its surfaces. Missing deciduous molars are, at this age, presumed extracted.

Summarisation for the permanent dentition includes the percentage of persons with decayed and/or filled first permanent molars. The number of affected first permanent molars is also expressed as a percentage of those present in the mouth.

Periodontal Disease

Standards of Assessment

Periodontal status is measured in terms of the condition of the periodontal tissues and the presence of calculus. The investing tissues of the upper and lower six front teeth were scored by the Periodontal Index (PI) developed by Russell (1956). Individual PI scores were totalled and divided by the number of persons examined in each locality to determine the group PI score. The percentage of persons with overt gingivitis and with destructive periodontal disease is also given.

Oral Hygiene

Standards of Assessment

The Oral Hygiene Index simplified OHI-S (Greene and Vermillion, 1964) was used to provide information on the amount of calculus and debris present in each group. Oral debris and stain were scored together and calculus was scored separately. The subject's OHI-S was obtained by adding the mean oral debris and mean calculus scores, the means being the total of individual scores divided by the number of surfaces examined. The group OHI-S was obtained by dividing the sum of individual OHI-S scores by the number of persons examined.

Results

The total school population, the number of children sampled and actually inspected in each locality is given in *Table 1*. *Table 2* gives the percentage of children referred for treatment. The highest referral rates were for children attending schools in Zabbar, Cospicua and Rabat. If allowances are made for school population density, the region encompassing Cospicua, Paola, Zabbar and Zejtun would make the greatest demands on curative services. Hamrun, Qormi and Zebbug together come a close second. The school populations of Valletta, Floriana, Msida, Gzira, Sliema and St. Julians combined are less than three fourths of those of Birkirkara, Rabat, and Mosta, localities making the next heaviest demand on the resources of the School Dental Service.

Eighty percent of seven year olds in Zabbar suffer from dental caries and thirty percent have dental calculus. The lowest

LOCALITY	SCHOOL POPULATION	SAMPLE			NUMBER INSPECTED		
		MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
Birkirkara	1925	139	138	277	127	125	252
Cospicua	932	65	62	127	55	49	104
Hamrun	2096	123	96	219	116	89	205
Mosta	942	67	64	131	65	62	127
Paola	1410	105	81	186	92	71	163
Qormi	1973	140	116	256	131	110	241
Rabat	1204	108	78	186	97	71	168
Sliema	732	50	72	122	44	67	111
Valletta	809	51	52	103	40	47	87
Zabbar	1216	85	67	152	76	55	131
Zebbug	1020	69	72	141	59	55	114
Zejtun	1196	85	87	172	77	79	156
Zurrieq	826	58	46	104	55	44	99
Total	16281	1145	1031	2176	1034	924	1958

Table 1. Total school populations, number of seven year old children sampled, and actual number available for inspection (October, 1970 - July, 1971).

LOCALITY	% OF CHILDREN REFERRED FOR TREATMENT			% OF CHILDREN REQUIRING TREATMENT FOR DENTAL CARIES			% OF CHILDREN REQUIRING TREATMENT FOR REMOVAL OF CALCULUS		
	MALE	FEMALE	MIXED	MALE	FEMALE	MIXED	MALE	FEMALE	MIXED
Birkirkara	68.5	71.2	70.0	60.0	57.6	58.7	16.5	22.4	19.4
Cospicua	78.2	85.7	81.7	65.5	81.6	73.1	18.2	12.2	15.4
Hamrun	59.5	61.8	60.5	51.7	58.4	54.6	12.1	9.0	10.7
Mosta	55.4	43.5	49.6	50.8	43.5	47.2	9.2		4.7
Paola	67.4	78.9	72.4	59.8	70.4	64.4	10.9	23.9	16.6
Qormi	55.7	71.8	63.1	53.4	66.4	59.3	9.2	12.7	10.8
Rabat	73.2	85.9	78.6	62.9	76.1	68.5	25.8	26.8	26.2
Sliema	65.9	71.2	68.5	56.8	64.2	61.3	18.2	13.4	15.3
Valletta	60.0	72.3	66.7	55.0	72.3	64.4	5.0	2.1	3.4
Zabbar	90.8	90.9	90.8	80.3	80.0	80.1	31.6	27.3	29.6
Zebbug	74.6	76.4	75.4	62.7	67.3	64.9	11.8	10.9	11.4
Zejtun	70.1	81.0	75.6	67.5	74.7	71.2	5.2	21.5	13.5
Zurrieq	72.7	78.5	75.8	65.5	70.5	67.7	14.5	18.2	16.1

Table 2

Locality	def			d			i			e			f		
	M	F	Mixed	M	F	Mixed	M	F	Mixed	M	F	Mixed	M	F	Mixed
Birkirkara	2.31	2.24	2.28	1.35	1.18	1.26	0.08	0.15	0.12	0.87	0.88	0.88	0.01	0.03	0.02
Cospicua	2.80	4.02	3.38	1.47	2.31	1.87	0.33	0.49	0.40	1.00	1.20	1.10		0.02	0.01
Hamrun	1.78	2.00	1.88	1.14	1.17	1.15	0.14	0.09	0.12	0.50	0.72	0.60		0.02	0.01
Mosta	2.02	1.58	1.81	0.99	1.05	1.02	0.23	0.11	0.17	0.81	0.39	0.61		0.03	0.02
Paola	2.31	2.39	2.35	1.18	1.55	1.34	0.18	0.22	0.20	0.93	0.62	0.80	0.02		0.01
Qormi	2.04	2.22	2.11	1.06	1.17	1.11	0.22	0.29	0.25	0.71	0.75	0.72	0.05	0.02	0.03
Rabat	2.27	3.14	2.62	1.42	1.86	1.61	0.35	0.28	0.31	0.50	1.00	0.70			
Sliema	2.18	2.48	2.36	1.30	1.52	1.43	0.20	0.15	0.17	0.68	0.81	0.76			
Valletta	2.34	2.54	2.45	1.02	1.49	1.28	0.60	0.38	0.48	0.72	0.67	0.69			
Zabbar	3.44	3.37	3.42	2.16	2.22	2.18	0.44	0.20	0.35	0.84	0.95	0.89			
Zebbug	2.64	2.33	2.49	1.63	1.33	1.48	0.31	0.18	0.24	0.66	0.82	0.74	0.04		0.03
Zejtun	3.22	3.05	3.14	1.86	1.83	1.85	0.58	0.43	0.51	0.73	0.78	0.76	0.05		0.03
Zurrieq	3.04	2.56	2.83	1.75	1.66	1.71	0.38	0.22	0.31	0.91	0.68	0.81			

Table 3. Mean "def" rates. Separate data are given for the mean number of deciduous teeth indicated for filling (d) or extraction (i), missing deciduous molars presumed extracted (e), and deciduous teeth filled (f).

prevalence rate for caries in 47.2% (Mosta) and for calculus 3.4% (Valletta).

Dental Caries — Deciduous Dentition

The "def" rates vary from 1.81 (Mosta) and 1.88 (Hamrun) to 3.42% (Zabbar). The percentages of children in Mosta and Zabbar with caries-free primary dentition were 55.1 and 24.4 respectively. When the "def" rates are broken down into their constituents *(Table 3)*, 30% of the mean number of affected teeth per person have apparently received curative treatment, and this is usually extraction. The most favourable ratio of teeth extracted to teeth restored is 24:1, the treatment Index (Jackson, 1961) for filled teeth in this locality (Qormi) being 1.5%.

The highest percentage of children with fillings (2.6%) and teeth requiring extraction (28.2%) attend the school at Zejtun.

Approximately 50-70% of children in all localities require fillings and 9-28% require extractions *(Table 4)*.

Dental Caries — Permanent Dentition

The majority of children aged seven years have erupted all four of their first permanent molars *(Table 5)*. When the percentage of persons with affected first permanent molars is considered, a disparity is apparent between the sexes in several localities. Girls are affected more than boys, with the exception of those attending Valletta and Zabbar schools. The percentage of Rabat girls with decayed first permanent molars was 32.4, they had erupted 3.8 of these teeth, 10.6% of which had decayed. At the lower end of the scale, 6.2% of Mosta boys had decayed molars, 3.6 of these teeth had erupted per person, 6.2% of which had decayed.

Caries tended to occur in pits and fissures on the occlusal surfaces, the buccal pits of lower molars being especially vulnerable. Incomplete eruption and deficient masticatory function encourage the formation of soft deposits in the vicinity of these pits which at this age lie at or slightly above gingival crest level.

When allowances are made for school population densities, again the region com-

Locality	% with "d"			% with "i"			% with "f"			% with nil "dif"		
	M	F	Mixed	M	F	Mixed	M	F	Mixed	M	F	Mixed
Birkirkara	56.7	50.4	53.6	7.1	10.4	8.7	0.0	3.2	1.9	42.5	46.4	44.4
Cospicua	61.8	77.6	69.2	21.8	29.1	26.9		2.0	1.0	36.4	20.0	29.8
Hamrun	48.3	47.2	47.5	11.2	7.9	9.8		1.1	0.5	50.0	49.4	49.8
Mosta	41.5	38.7	40.2	20.0	8.1	14.2		1.6	0.8	50.8	59.7	55.1
Paola	54.3	62.0	57.7	13.0	15.5	14.1	1.1		0.6	44.6	38.0	41.7
Qormi	48.1	58.7	52.9	17.6	16.5	17.1	1.5	0.9	1.2	49.6	40.4	45.4
Rabat	56.7	64.8	60.1	20.6	19.7	20.2				40.2	32.4	36.3
Sliema	50.0	56.7	54.1	13.6	10.4	11.7				50.0	40.3	44.1
Valletta	47.5	72.3	60.9	22.5	19.1	20.7				50.0	27.7	37.9
Zabbar	71.5	76.4	73.7	25.0	10.9	19.1				25.0	23.6	24.4
Zebbug	59.3	61.8	60.5	16.9	14.5	15.8	1.7		0.9	39.0	34.5	36.8
Zejtun	63.6	70.9	67.3	31.2	25.4	28.2	5.2		2.6	32.5	27.8	30.2
Zurrieq	58.2	65.9	61.6	27.3	15.9	22.2				38.2	34.1	36.3

Table 4. Point prevalence rates, deciduous dentition. Separate data are given for persons with one or more teeth indicated for filling (d), or extraction (i), one or more teeth filled (f), and no decayed or filled teeth.

prising Cospicua, Paola, Zabbar, and Zejtun would record the highest number of decayed first permanent molars requiring treatment with Birkirkara, Rabat and Mosta coming second.

Periodontal status

Approximately 80% of seven year old children show signs of gingivitis *(Table 6)*. The lowest prevalence is found in Qormi (55.6%) and the highest in Valletta (94.2%). No obvious correlation could be traced at this age between the prevalence of gingivitis, the PI Index, the OHI-S, the percentage of persons with calculus, and the mean number of erupted permanent incisors per person in the various localities.

The percentage of children with destructive periodontal disease in Paola was 1.8, and in Birkirkara and Qormi 1.2%. This condition usually presents as a grossly receded inflamed gingival margin on the labial surface of a lower permanent incisor. The lesion may not be associated with calculus deposits, anomalous occlusion or frenal insertion. Probably this is a manifestation of a developmental deficiency of the bony alveolar plate (fenestration or dehiscence). Trivial bone resorption may then lead to massive pocket formation, or the inflamed gingiva may recede to the level of alveolar bone support.

Ten to fifteen percent of children in all localities had dental calculus, the highest prevalences were however found in Zabbar (29.8%), Rabat (26.2%), and Birkirkara (19.4%).

Oral Hygiene Status

In all children examined a clean mouth is a rare finding *(Table 7)*. The lowest group OHI-S scores are for Birkirkara (0.94) and Hamrun (1.10), and the highest for Valletta (1.38). Very few children admitted to brushing their teeth, and several denied ever having seen a toothbrush before.

Discussion and conclusion

Childhood is an important phase in the life of every person when maximum

LOCALITY	MEAN NUMBER OF ERUPTED FIRST PERMANENT MOLARS PER PERSON				% OF DECAYED FIRST MOLARS		% OF PERSONS WITH DECAYED FIRST MOLARS	
	UPPER		LOWER					
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
Birkirkara	1.9	1.9	1.9	1.9	3.4	7.5	11.0	19.2
Cospicua	2.0	2.0	2.0	2.0	6.0	9.8	18.2	30.6
Hamrun	1.9	2.0	1.9	2.0	3.2	3.5	8.6	11.2
Mosta	1.8	1.8	1.8	1.9	6.2	9.7	6.2	8.1
Paola	1.8	1.9	1.8	2.0	2.4	4.7	7.6	22.2
Qormi	1.9	2.0	2.0	2.0	5.3	7.1	14.5	17.3
Rabat	2.0	1.9	2.0	1.9	5.6	10.6	17.5	32.4
Sliema	1.8	2.0	1.8	2.0	10.0	9.0	20.5	23.9
Valletta	1.9	2.0	1.9	2.0	7.2	2.2	20.0	6.4
Zabbar	1.9	2.0	1.9	2.0	13.1	7.8	27.6	18.2
Zebbug	1.8	1.8	1.9	1.8	6.0	6.7	15.3	18.2
Zejtun	1.9	2.0	1.9	2.0	4.5	5.1	9.1	16.5
Zurrieq	1.9	1.9	1.9	1.9	5.7	5.9	10.9	15.1

Table 5

Locality	*OHI-S*			*% Clean Mouths*		
	M	*F*	*Mixed*	*M*	*F*	*Mixed*
Birkirkara	0.93	0.94	0.94	2.4	0.9	1.7
Cospicua	1.27	1.22	1.25			
Hamrun	0.96	1.33	1.10			
Mosta	1.26	1.27	1.26			
Paola	1.06	1.25	1.15			
Qormi	1.12	1.13	1.13	0.8		0.4
Rabat	1.30	1.28	1.29	1.1		0.6
Sliema	1.31	1.15	1.18			
Valletta	1.33	1.44	1.38			
Zabbar	1.23	1.17	1.21			
Zebbug	1.32	1.27	1.29	1.9		0.9
Zejtun	1.18	1.32	1.26			
Zurrieq	1.39	1.30	1.35			

Table 7. The Group Oral Hygiene Index Simplified (OHI-S) and the percentages of persons with clean mouths are given for the various localities, and the sexes separately.

Locality	Group PI			% with gingivitis			% with destructive periodontal disease			% with calculus		
	M	F	Mixed	M	F	Mixed	M	F	Mixed	M	F	Mixed
Birkirkara	0.35	0.26	0.31	74.0	83.2	78.6		2.4	1.2	16.5	22.4	19.4
Cospicua	0.47	0.80	0.63	76.4	89.8	82.7				18.2	12.2	15.4
Hamrun	0.33	0.36	0.34	60.3	59.4	60.0	0.9	1.1	1.0	12.1	9.0	10.7
Mosta	0.44	0.42	0.43	73.8	71.0	72.4		1.6	0.8	9.2		4.7
Paola	0.40	0.57	0.47	71.7	76.1	73.6	2.2	1.4	1.8	10.9	23.9	16.6
Qormi	0.31	0.40	0.35	54.2	57.3	55.6	1.5	0.9	1.2	9.2	12.7	10.8
Rabat	0.61	0.71	0.65	76.3	87.3	81.0		1.4	0.6	25.8	26.8	26.2
Sliema	0.48	0.49	0.49	81.8	83.6	82.9				18.2	13.4	15.3
Valletta	0.63	0.68	0.66	100.0	89.4	94.2				5.0	2.1	3.4
Zabbar	0.66	0.58	0.63	92.1	92.7	92.4				31.6	27.3	29.8
Zebbug	0.66	0.62	0.64	88.2	90.9	89.5		1.8	0.9	11.8	10.9	11.4
Zejtun	0.42	0.49	0.46	80.5	77.2	78.8				5.2	21.5	13.5
Zurrieq	0.59	0.50	0.54	85.5	75.0	80.8				14.5	18.2	16.1

Table 6. The Group Periodontal Index (PI) for children in the various localities. Additional data are provided on the percentage of persons with overt gingivitis, destructive periodontal lesions, and calculus.

physical, mental and emotional development is occurring. It is a period which offers a favourable opportunity for the inculcation of positive health habits and the initiation of the practice of preventive dentistry. However, it is still accepted by parents that it is normal for milk teeth to decay, and that their loss is of no consequence. The consciousness of the need for dental care is also very low.

The children included in this survey had been inspected and referred for treatment, however only 20-53% had been rendered caries-free, 6-32% had decayed permanent teeth, 3-30% had dental calculus, and 100% had unclean mouths.

The child should be given a standard to aim at in terms of comprehensive care. However, even if a mouth is restored by proper treatment, neglect and failure to seek further professional services soon will allow recurring attacks of disease to reduce it to its former condition. Individual motivation is the key to improving dental health.

Today, a major goal of society is to enable everyone to work to full capacity toward the fulfilment of purposeful living. It is in this area that dentistry makes its greatest contribution. Any realistic plan to bring about a rapid improvement in the dental health of the community will involve a measure of organised action. The solution to the dental health problem to solution to the dental health problem will require a reappraisal of the value of dental service. It is necessary to inform the public about the dental health problem to stimulate constructive action.

The fact that funds available for health programmes are always limited make it important to determine the types of programmes that will do the most to improve oral health conditions within the limitations of available resources. For this reason, preventive and educational activities should usually be given priority over treatment programmes. The profession has paid little attention to the use of mass media in communicating with the general public. Communications people can assist in finding proper directions in preparing programmes, but the individual dentist at the chairside, in the surgery,

and in the community can, and must, make his own contribution. Dental education must encourage the development of a greater social role for the dental profession, and this is best done by the integration of a course of community dentistry into the education of the dental student (Burt, 1970).

The country should have a national dental health plan which integrates the production of manpower with the delivery of services. National shortages of dental manpower can be solved by the inclusion of increasing numbers of some type of operating auxiliary.

To reveal deficiencies of the plan provision should be made for periodic evaluation. This will enable corrections to be made as the plan develops. It must be ascertained whether the objectives are being achieved, what the extent of the programme's contribution is to the improvement of the dental health of the community, and whether each activity of the Service is playing its appropriate part and developing at the planned rate.

A good plan and a good evaluation of it can be of great assistance in the justification of financial support.

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A PROSTHETIC APPROACH TO MAXILIARY DEFECTS

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Summary

The literature on maxillary obturators is briefly reviewed and a technique for their construction, using a two stage temporary obturator, is described.

Prosthetic rehabilitation of Maxillary defects is a subject which has attracted considerable attention in dental literature. Credit for the first proper description of a palatal obturator is due to Ambroise Pare' (1509-1590). Pierre Fauchard (1678-1761), the founder of modern scientific dentistry, devoted a large portion of his celebrated work "Le Chirurgien Dentiste" to a detailed consideration of maxillary prostheses (Lindsay 1946). Subsequent major advances in this field of dentistry were closely associated with the discovery of more suitable dental materials. Despite its shortcomings the potential of vulcanite as a maxillofacial prosthetic material was fully realized by Kazanjian (1915; 1934) who did much to improve the design of complex intra-oral appliances.

Methyl methacrylate completely replaced vulcanite for intra-oral prosthesis by the late 1930s. Its main disadvantages, hardness and rigidity, are in some ways compensated by the durability (Bulbulian 1964). It is to this day in almost universal usage. In recent years the softer plastic materials, despite their lack of durability, have come to play an important role in the construction of various intra-oral appliances (Storer 1963).

Acquired defects of the maxillae may occur as a result of an inflammatory process (eg. the gumma of tertiary syphilis), a traumatic incident, or, what is more common these days a neoplasm. Surgery for a neoplasm in this region may be relatively minor but, occasionally a mutilating procedure. Osteordionecrosis is a rare event in the maxillae. Irrespective of the degree of surgery, the patient benefits from prosthetic rehabilitation. Surgical reconstruction of maxillary defects is rarely contemplated; the use of a prosthesis is in any event preferable during the period when recurrence is more likely (Coffin 1964).

Temporary Obturators

The use of a temporary obturator is now generally recognised as essential immediately following maxillary resection (Kruisbrink 1959). Geddes (1969) favours its insertion at operation but some authorities recommend a waiting period of seven to ten months (Appleman, 1952; Scannell, 1965).

The essential functions of a temporary obturator are:

1. To restore facial contour.
2. To limit the formation of cicatrical tissue.
3. To prevent contamination of the surgical cavity.
4. To allow for the ingestion of food by providing a reasonable degree of mastication and deglutition.
5. To allow for normal speech.
6. To act as an applicator for a skin graft or surgical dressing.
7. To prevent the patient from realizing the true extent of the deformity.

Prior to operation two identical plates are constructed in clear acrylic *(Fig 1)*. Posterior bite blocks are recommended in place of teeth; balanced articulation and thus stability are easily achieved. This

plate has to be worn continuously for two or three weeks post operatively and every effort must therefore be made during its construction to ensure comfort by preventing undue irritation of the mucosa and by obtaining a maximum degree of retention and stability.

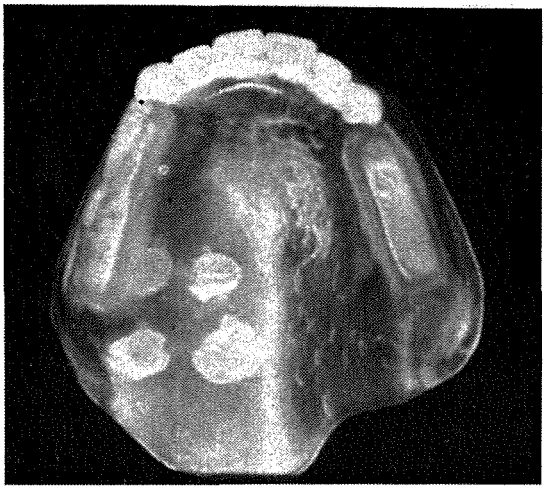

Fig. 1

One of the two acrylic plates is placed overnight in a 1% cetrimide solution prior to use in the theatre. At the termination of the operation and with the patient still under anaesthesia, the mouth is examined and any additional surgery which will aid subsequent construction of a permanent prosthesis is suggested. The acrylic plate is rinsed in sterile saline prior to insertion and the posterior border is adjusted to extend 5mm beyond the boundary of the defect, if this involves the soft palate.

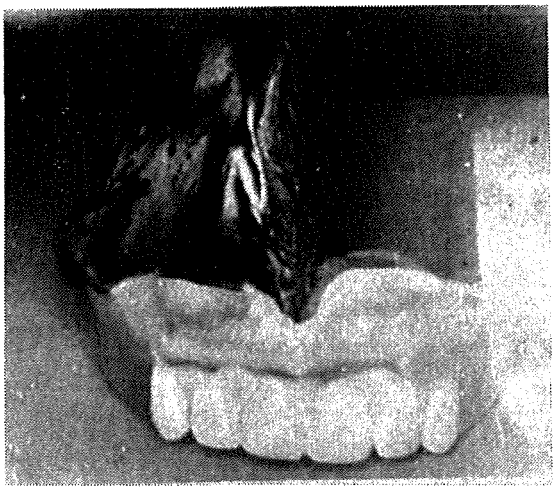

Fig. 2

The intra-maxillary portion of the obturator is fashioned in black gutta percha *(Fig. 2)*. This is painted with liquid paraffin to facilitate insertion and prevent any surgical dressing from adhering to it. The facial contour is overbuilt in order to allow for the inevitable subsequent contracture. If an extra-oral flap has been raised, as in the classical operation for removal of the upper jaw (hemi-maxillectomy), the temporary obturator is positioned before suturing of the flap. If this step is not followed, rupture of the suture in the mid-line is likely to result.

When the surgical cavity has not been skin-grafted, it is examined under a general anaesthetic on the seventh post-operative day. This opportunity is taken to withraw the first obturator and insert a similar one making use of the second acrylic plate. On this occasion the extension of gutta percha into undercut areas is limited to allow removal of the appliance without pain. This temporary obturator is worn by the patient for a period of up to two months when a permanent appliance should be constructed.

The first obturator provides an excellent impression of the surgical cavity, a stone model is cast and used for the construction of a special tray in connection with the permanent obturator.

The Permanent Maxillary Obturator

The construction of a permanent appliance is started when the surgical cavity has healed completely. This period varies with the individual patient but is usually in the region of two months after operation. Skin grafting after major oral surgery allows for the construction of earlier and more comfortable prosthesis; this practice is, however, not as common as would be expected.

Recognizing the problems of bulk and weight associated with a prosthesis for a large maxillary defect, Appleman (1951) suggested the use of an acrylic hollow bulb obturator. Nidiffer and Shipman (1957) subsequently described a simplified

technique for the construction of a similar type of appliance and pointed out that the inherent lightness prevented any gross changes in muscle balance. Coffin (1964) makes use of a simple open design as opposed to a closed bulb.

Payne and Welton (1965) suggested the use of a rubber latex balloon attached to a denture, to overcome the problems of retention. The balloon is inflated after the denture is inserted. The rapid ageing process of latex (Matthews 1942) is a distinct disadvantage. The advent of the resilient denture base material has minimized the problem of retention.

The final impressions for the construction of an obturator are taken in alginate. Paraffin gauze is used to prevent the extension of the impression material into inaccessible regions. This point is of particular importance when dealing with small palatal defects communicating with the antrum.

Two major functions of a permanent prosthesis are the establishment of an effective oro-nasal seal and the restoration of facial contour. With these in mind an obturator base is constructed and tried in the patient's mouth and any necessary additions made in green stick composition and subsequently processed in acrylic. This phase of construction is vital as a muscle trimmed alginate impression does not allow for the precise building out of facial form. Radical modifications *(Fig.3)* may be necessary to achieve an acceptable result. When the defect involves the soft palate, it is necessary to obtain some degree of composition of the soft tissue at the periphery of the defect in order to have a functional oro-nasal seal. Again alginate does not achieve this and a muco-compressive impression technique employing composition is indicated.

As far as retention is concerned, surprisingly little trouble is experienced with the large hollow bulb obturator and this also applies to the simple open obturators described by Coffin. Smaller defects, however, which do not allow for the construction of a bulb or a lateral extension often give rise to concern. In such instances the less durable resilient denture base materials are recommended *(Fig. 4, 5)*.

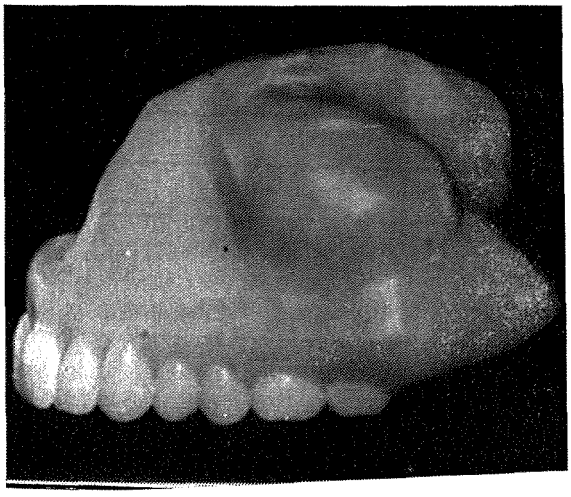

Fig. 3

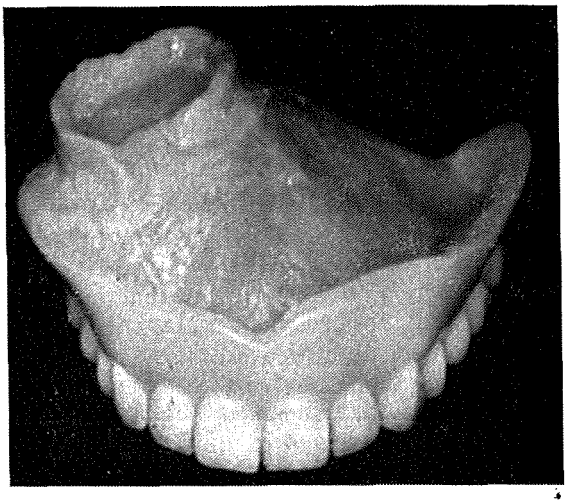

Fig. 5

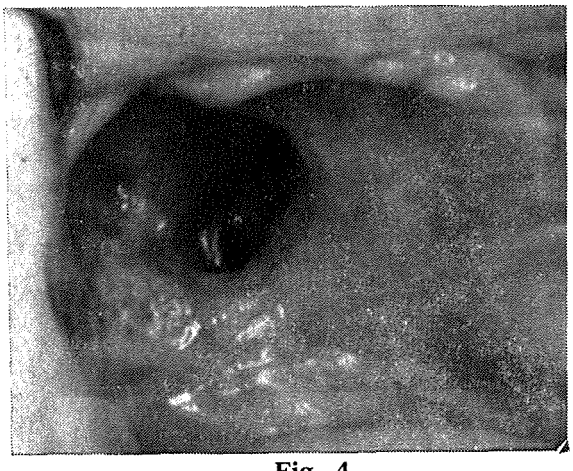

Fig. 4

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INFECTIOUS MONONUCLEOSIS COMPLICATED BY ACUTE HAEMOLYTIC ANAEMIA DUE TO ANTI-HI ANTIBODY

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Significant anaemia is uncommon in infectious mononucleosis. When it occurs, it is usually due to increased red cell destruction though bone marrow hypoplasia may sometimes be responsible (Worlledge and Dacie, 1969). In the majority of studied cases, the temporary production of high thermal amplitude antibodies of i-specificity was apparently responsible for the haemolytic anaemia. A case of infectious mononucleosis complicated by a severe haemolytic anaemia due to a different antibody of HI-specificity is here described.

Case Report

A 25-year old man, manager of a grocery shop, was admitted to St. Peter's Hospital, Chertsey, Surrey, on 1st May, 1971, with a three-day history of intermittent generalised abdominal pain, persistent nausea and slight vomiting. He had felt feverish, very tired, and short of breath on the slightest exertion. He had noted that his skin had become increasingly pale, and that his urine was a dark red colour. There was no sore throat or skin rash. No relevant past history was obtained.

On examination, he was a thin, ill young man with marked pallor and moderate jaundice. His temperature was 38.6°C. He had a regular full pulse of 100 per minute and a blood pressure of 130/60. The only abnormality on examination of the heart was a soft midsystolic murmur

heard all over the praecordium. There were no abnormalities in the mouth, the fauces and the joints. Non-tender moderately enlarged lymph nodes were present in the neck, axillae and inguinal regions. Examination of the abdomen revealed a firm non-tender 4 cm splenomegaly but the liver was not palpable. There was no purpura or bone tenderness. The respiratory and neurological systems were normal.

Immediate investigations gave the following results:

Urine: reddish-brown colour, bilirubin absent, excess urobilinogen present, porphyrins absent; tests for haemoglobin were strongly positive.

Haemoglobin 8.5 g/100 ml, PCV 24%, MCHC 35%, reticulocytes 6%; white cell count 10,600 c.mm. with 56% neutrophils, 12% lymphocytes, 7% monocytes, 4% myelocytes, and 21% atypical mononuclear cells; platelet count 119,000/c. mm.; the blood smear showed increased polychromasia and some microspherocytes.

Serum bilirubin 5.2 mg/100 ml (unconjugated fraction 4.5 mg/100 ml), serum alkaline phosphatase 70 I.U./litre, serum aspartate aminotransferase 22 I.U./litre, serum hydroxybutyrate dehydrogenase 350 I.U./litre.

Blood urea 80 mg/100 ml, serum sodium 125 m.mol/litre, serum potassium 4.6 m.mol/litre.

Blood group: A Rhesus negative.

Quantitative Paul-Bunnell Test: unabsorbed serum titre 1 in 192, guinea-pig absorbed titre 1 in 192, and ox cell absorbed titre less than 1 in 12.

Direct Coombs test positive: coating antibody of non-IgG type.

Chest X-Ray and electrocardiogram: normal.

The cold agglutinin titres are shown in Table 1.

The clinical findings and investigations established the diagnosis of a severe haemolytic anaemia associated with infectious mononucleosis. It was decided to withhold active treatment at first, but the haemoglobin level fell sharply over the 24 hours following admission, and he was then given a transfusion of four units of packed cells and started on oral prednisolone in a daily dosage of 40 mg. There was a rapid improvement in his symptoms and a return of the temperature to normal. The rise in the haemoglobin level is shown in Figure 1. No further transfusions were given and the prednisolone dosage was progressively cut down. He was discharged home on 1st June 1971 and was followed up at the Outpatients' Clinic. At his last attendance on 12th October 1971, he was well, with a normal blood picture and no evidence of haemolytic disease.

Discussion

Haemolytic anaemia in association with infectious mononucleosis was first described by Dameshek in 1943. By 1969, at least 53 patients had been reported (Worlledge and Dacie, 1969). Hoagland (1967) estimated that the incidence was 3%. Minor degrees of anaemia may be much more common (Casey and Main, 1967) but it is generally accepted that severe anaemia is rare.

Our patient's haemolytic anaemia followed the pattern described by Dacie (1960). An acute onset with high fever,

Date	*Temp*	*O R_1R_2 cells*	*O cord cells*	*Patient's cells*
2/5/71	4°C	64	64	128
	Room	16	32	8
	37°C	0	8	0
7/5/71	4°C	64	64	32
	Room	4	16	4
	37°C	0	4	0

Table 1. Cold Agglutinin titres.

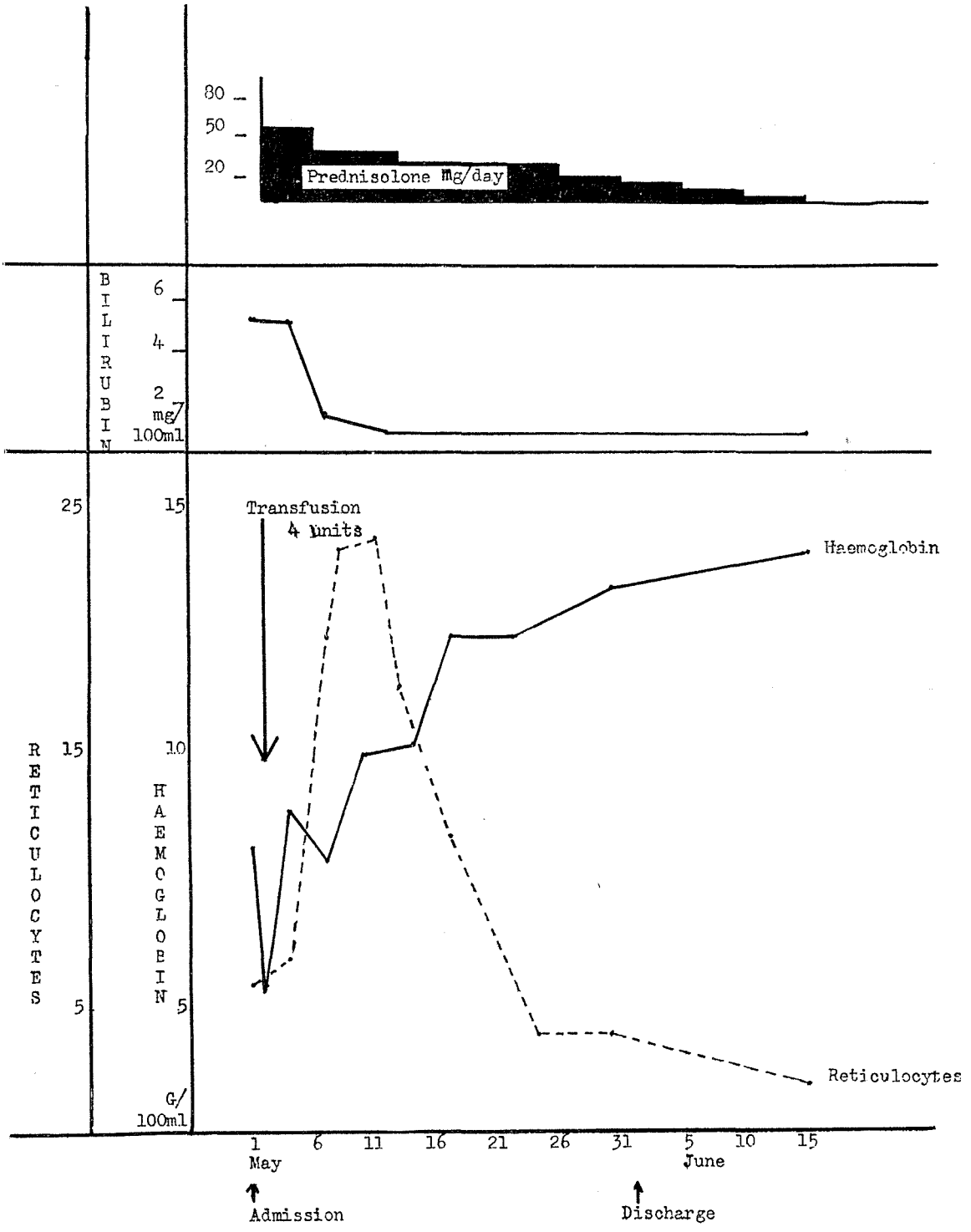
80
50
20
Prednisolone mg/day
BILIRUBIN
6
4
2
mg/
100ml
25
15
10
5
RETICULOCYTES
HAEMOGLOBIN
G/
100ml
Transfusion
4 units
Haemoglobin
Reticulocytes
1
6
11
16
21
26
31
5
10
15
May
June
Admission
Discharge

FIGURE 1

rapidly advancing anaemia and jaundice is characteristic. The anaemia usually appears one to two weeks after the onset of symptoms of infectious mononucleosis, but both may develop simultaneously in a quarter of cases, as occurred in our patient. Haemoglobinuria is uncommon, but has been reported in at least four cases (Dacie, 1960). The severity of the haemolysis may be of any degree, and spherocytosis is a frequent feature. The rise in the reticulocyte count may be surprisingly small in the early stages, possibly reflecting a temporary functional or actual bone marrow hypoplasia (Mengel *et al.*, 1964). The prognosis is excellent as the haemolysis is characteristically transient, subsiding spontaneously in one or two months, unless there is an associated hereditary haemolytic disease such as thalassaemia (Thurm and Bassen, 1955). Recovery may be hastened by keeping the patient warm. Blood transfusion is only required in the more severe cases, and difficulty in grouping is not usually met provided all procedures are carried out at 37°C. No untoward reactions followed transfusion in our patient. Corticosteroids are of uncertain value, but difficult to withhold in a seriously ill patient. The symptomatic improvement with prednisone therapy in our patient was almost certainly unrelated to any effect on the haemolysis.

The evidence now available suggests that the increased red cell destruction in infectious mononucleosis is commonly due to an auto-antibody of i-specificity. The first cases of anaemia due to anti-i antibodies were described by Calvo *et al.* (1965) and Jenkins *et al.* (1955). Most cases that have been studied since then have shown an association with anti-i antibodies, but hypersplenism, inherited red cell defects aggravated by the disease and as yet unidentified metabolic toxins (Keyloun and Grace, 1966) have been held responsible in rare instances. It is now realised that the commonest cause of anti-i haemolytic anaemia in temperate climates is infectious mononucleosis, though it has been reported in occasional patients with lymphoma, terminal malignancy and alcoholic cirrhosis (Rubin and Solomon, 1967). In tropical countries anti-i haemolytic anaemia is a frequent feature of the "tropical splenomegaly" syndrome.

Recent studies have established that anti-i antibody is commonly produced in infectious mononucleosis even in the absence of haemolytic anaemia. Jenkins (1965) found evidence of anti-i in 8% of his patients, but several reports have suggested a much higher incidence up to 71% (Rosenfield *et al.*, 1965). It seems likely that the causative organism of infectious mononucleosis commonly stimulates the production of anti-i antibodies as a transient phenomenon during the phase of maximal reticulo-endothelial hyperplasia, at a time when a number of transient 'false positive' immunological reactions (such as the Wassermann reaction) may also be demonstrated (Carter, 1966).

The anti-i antibody apparently gives rise to detectable haemolytic disease in only a small proportion of cases. It is believed that one important factor may be the thermal amplitude of the antibody, haemolysis only occurring in those cases where activity is retained at room temperature. Why anti-i should ever produce haemolytic anaemia in adults is not clear. Adults with i red cells are extremely rare in temperate climates. Jenkins (1960) could not find a single example among 17,000 British blood donors. It is true that five of the reported cases of infectious mononucleosis with haemolytic anaemia due to anti-i also had hereditary red cell defects — spherocytosis and thalassaemia — known to result in increased agglutination with anti-i (Gilbert and Crookston, 1964), but in the majority of cases this was not the case. A possible explanation may be a temporary disturbance in the ratio of I and i antigens in red cells produced during the early phases of infectious mononucleosis. Similar disturbances are known to occur in conditions where red cells are prematurely released from the bone marrow.

It is of great interest that our patient did not show evidence of anti-i antibody activity. The haemolytic anaemia was associated with cold agglutinins which

agglutinated adult O red cells and cord O red cells to the same high titre at 5°C and to a lesser titre at 28°C. Further investigation revealed that the antibody had an anti-HI specificity. This antibody may have some similarities with the one described by Brafield (1966) in his patient with infectious mononucleosis, which agglutinated both I and i cells to the same high titre at 4°C, but was present still a year later, casting some doubt on its significance in the aetiology of the anaemia. In our patient however the antibody titres fell within four weeks and no abnormal agglutinins could be detected four months later. We therefore believe that the haemolytic anaemia in our patient was due to an auto-antibody of HI-specificity not previously described in infectious mononucleosis.

Acknowledgements:

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CYSTIC DEGENERATION OF THE POPLITEAL ARTERY

A Case Report

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Summary

Cystic degeneration of the popliteal artery is a rare condition, some forty cases having been described in the world literature. Another case is described here and the pathology, aetiology and management are discussed.

Case Report

A man, aged forty, was admitted as an emergency to the medical wards at Joyce Green Hospital, Dartford, Kent in November 1970 with a diagnosis of arterial embolism in the left leg. The history was that of sudden onset of pain in the left leg in a previously healthy man; the patient's foot had felt cold for a few minutes and he also complained of a sensation of 'pins and needles' in his left toes.

On examination immediately following admission, the patient was a healthy looking man, B.P. 140/75, pulse and heart both normal in rate and rhythm, lungs clear. The left foot was colder than the right and the popliteal and pedal pulses were absent on that side. X-ray chest, E.C.G., blood count and serum cholesterol were all normal. The patient was started on a heparin drip and the pain in his leg gradually disappeared over the next two hours.

The writer was asked to see the patient about twelve hours following admission to hospital, and the above history and clinical findings were confirmed. Although the femoral pulse was readily palpable the popliteal and pedal pulses were still absent on the left side. However, the patient was free from pain, there was full sensation in the left lower limb and no appreciable difference in colour and temperature between the two legs. In the absence of cardiac arrythmia or any other demonstrable cause for an arterial embolus and as there was no immediate indication for emergency surgery it was felt that further investigations were necessary. Auscultation with an ultrasound flow velocity meter revealed patency of the femoral artery up to the adductor canal; the popliteal artery was obviously occluded. A left femoral arteriogram showed a normal looking arterial tree up to the level of the popliteal artery which showed a smooth stenosis, about 2.5 cms. long, at the level of the knee joint.

The popliteal artery was explored the next day. The distal end of the artery was non-pulsatile and there was a peculiar swelling involving a segment about two inches long. A small arteriotomy was made in the dilated segment of the artery and on incising the adventitia clear gelatinous material extruded. A thin walled cyst, apparently attached to the adventitia, was present and was removed. There was no evidence of atherosclerosis. Following suture of the arteriotomy incision there was good pulsatile flow in the popliteal artery with return of the pedal pulses.

Post-operatively the patient did well but soon after discharge from hospital he returned to Surgical Out-Patients complaining of intermittent claudication at about 200 yards. Arteriography demonstrated a localised narrowing at the site of the arteriotomy. The popliteal artery was explored again, the affected segment resected and a reversed autogenous long saphenous vein graft was inserted. Post-operative course was uneventful and the graft was still open ten months later.

Histologically the specimen showed a cyst wall with areas of mucinous degeneration.

Discussion

Cystic degeneration of the popliteal artery is a rare condition. It was first described by Ejrup and Hiertonn (1954). Since then about forty cases have been described in the world literature. Typically the lesion affects the popliteal artery of young males; very rarely it occurs in other arteries and in women and children.

The etiology of the lesion is obscure. The following theories have been proposed:

1) that it is due to degenerative changes occurring in an atherosclerotic artery. This is unlikely in view of the fact that this is a lesion often affecting young people and at operation most observers have noted that the rest of the arterial tree felt normal.

2) that this is an acquired lesion, repeated minor trauma to the popliteal artery causing a mucinous degeneration in the adventitial layer of the artery (Ishikawa *et al.*, 1961).

3) an interesting possibility is that this may be a developmental lesion, mucin-secreting cells from the endothelium of the knee joint having become included in the adventitia of the artery.

Histological examination shows no evidence of haemorrhage, inflammation or neoplasia, the salient feature being myxomatous degeneration affecting primarily the adventitia of the artery; the media and intima may be involved secondarily by compression.

Harris and Jepson (1965) analysed the gel from the cyst and this revealed significant amounts of hydroxyproline. Hood (1957) also found that the main constituent is mucoprotein.

The usual presenting symptom is intermittent claudication, of gradual or sudden onset, in one leg and often accompanied by a cold white foot. A visible or palpable swelling is unusual. The condition can usually be recognised by the typical arteriographic appearance which shows a localised lesion at or above the level of the knee joint in an otherwise normal popliteal artery. The artery may be displaced backwards by the cyst.

Conservative surgical treatment by dissection of the cyst from the artery or opening the cyst and removal of the gel may restore blood flow and normal pulsation. Where complete occlusion is present, a better result is likely if the affected segment is resected with autogenous vein graft replacement.

The immediate results are usually very good with restoration of full pulsation in the distal arteries. The long-term results have also been satisfactory as only a few of the recorded cases have re-occluded. After the initial setback the case presented above is still fully patent and the patient is asymptomatic.

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THE EHLERS-DANLOS SYNDROME
Discussion and Case Presentation

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Introduction

The Ehlers-Danlos Sydrome (Syn. Cutis hyperelastica) is a rare syndrome, the characteristic features of which are hyperelasticity and fragility of the skin, hyperextensibility of joints and fragility of blood vessels. Musculo-skeletal, ocular and internal manifestations are present in some cases (Day and Zarafonetis, 1961)

Pathology

There is a generalised defect of connective tissue in which the collagen fibres are scanty and arranged in a disorderly fashion, whilst the elastic fibres are increased. The essential defect is a quantitative deficiency of collagen. Light microscopy studies reveal collagen fibres which appear normal but they form an inadequate weave of loose texture in the dermis, subcutaneous tissues and joint capsules. Electronmicroscopy shows an abnormal periodicity of the striations of the collagen fibres. The elastic fibres are qualitatively normal on histochemical and electronmicroscopic examination but they are increased in number.

Defects in the adventitia of small arteries and inadequate support from surrounding connective tissue account for the vascular vulnerability (Barabas, 1966) which may be a conspicuous clinical feature as in the case reported below. Blood platelets are defective in most cases (Lisker *et al.*, 1960). This defect may contribute to the abnormal beeding tendency.

The inheritance of this syndrone is of two types. In the majority of cases, it is determined by an autosomonal dominant gene .The expression of the gene is variable and incomplete forms are frequent. In some cases inheritance seems to be sexlinked (Beighton, 1968).

Clinical Features

The condition is usually first noticed when the child begins to move about freely, but the milder forms are often overlooked.

The Skin

(a) *Hyperelasticity*

The synonym of this syndrome, *cutis hyperelastica,* is self explanatory. The hyperelasticity of the skin varies in degree and extent. The skin feels soft and velvety. It is hyperextensible and this can be demonstrated by pulling skin out in a fold *(Fig. I).* On release, the skin springs back to its original position. On the palms and soles, the skin tends to be redundant and may flatten out like a loose glove on pressure .The skin is not otherwise lax until later in life when redundant folds may form at the elbows.

(b) *Fragility*

Because of the reduced bulk of collagen present, the skin is fragile and may split even on minor trauma. Lacerations form gaping wounds which heal very slowly to leave broad ,paper-thin atrophic scars. In these scars, spongy tumors con-

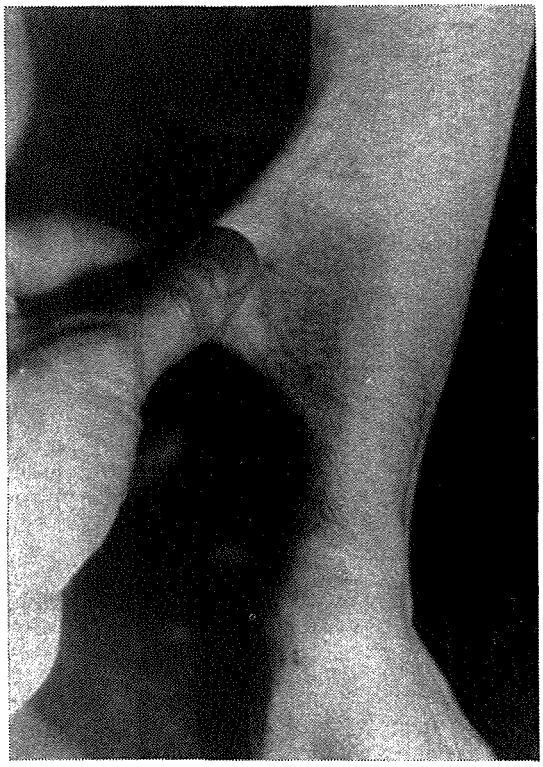

Fig. I: Showing skin hyperextensibility.

sisting of fat and mucoid material may develop. These in turn may calcify and feel like hard, mobile grains of rice under the skin. Sutures may tear out completely.

The Joints

Hyperextensibility of the joints is another of the features of this syndrome *(Fig. 2)*. The hyperextensibility is variable. There may be merely double jointed fingers but in some cases walking is difficult and the gait is waddling and stumbling. Subluxation of the larger joints may occur spontaneously or through slight trauma. Due to hyperextensibility of joints and weak ligaments, kyposcoliosis is often present *(Fig. 3)*. Muscle tone is often poor and hernias develop.

The Blood Vessels

There are two factors which cause an abnormal bleeding tendency. These are friability of the blood vessels due to the abnormal connective tissue which supports them, and to defect in the platelets.

Minor injuries not breaking the skin may induce haematoma formation and easy bruising may be a presenting symptom. Fatal haemorrhage has followed trauma to large vessels.

Other Concomitants

Defects in other organs do not occur regularly but anomalies of the heart and dissecting aneurysms have occurred. Angioid streaks in the fundus and angiomas of the skin have been noticed in several cases.

The Ehlers-Danlos syndrone has occurred with osteogenesis imperfecta (Biering and Iverson, 1955) pseudo-xanthoma elasticum and Marfari's syndrome.

General physical and mental development are usually normal. The expectation of life is normal except in individuals with cardiac defects, but some deaths have occurred in youth from rupture of large arteries.

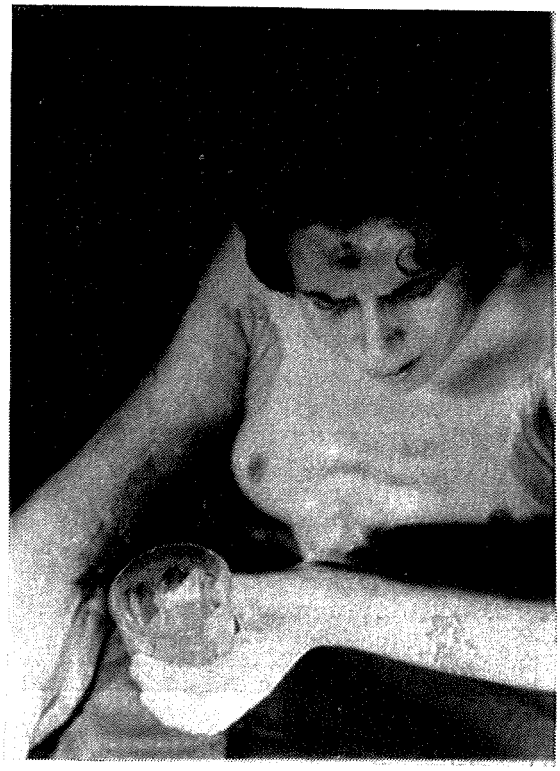

Fig. 2: Hyperextension of the wrist joint.

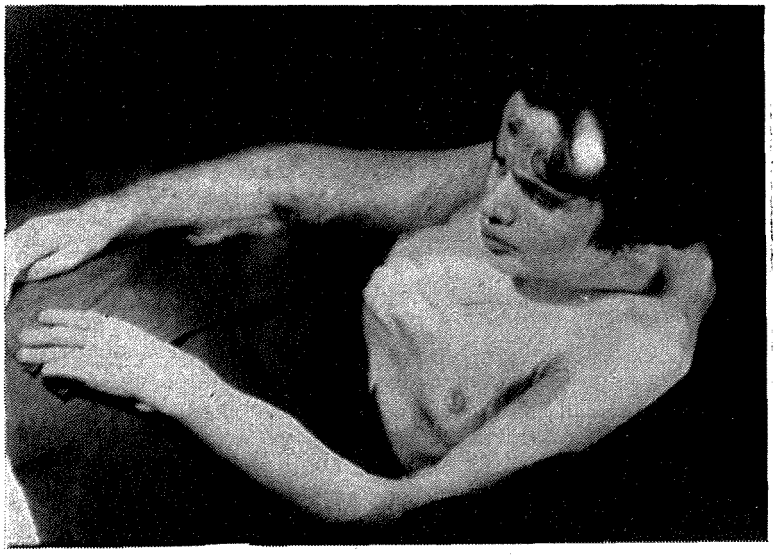

Fig. 3: Prominent sternum secondary to Kyphoscoliosis.

No treatment is known. Surgical procedures may present a problem as the tissues are friable and difficult to suture. Meticulous techniques and pressure dressing are desirable.

Case Presentation

A nineteen year old girl was admitted to the Casualty Ward at York County Hospital suffering from shock. She had first attended the Casualty Department six hours previously after sustaining a small 2″ incised wound in her right forearm following minor injury. This wound had been cleaned and sutured and after the application of a dressing, the patient had been discharged.

Now she was in clinical shock. Her pulse was 140/min. and of small volume; her B.P. was 90/50 mm.Hg.; her R.R. was 30/min .and she was covered with cold sweat. Her right forearm had swollen enormously and it was quite painful. The bandages were removed and examination of her right forearm showed gross swelling and vast bruising over the part. It was obvious that the injury sustained previously has caused bleeding inside the limb, that this had continued and had now caused shock. A blood transfusion was set up. Further pressure bandages were applied and the limb was elevated. Six pints of fresh blood were given over a period of sixteen hours, by which time the bleeding had stopped and the shock had been overcome.

The girl was suffering from the Ehlers-Dunlos Syndrome. The main characteristics of the syndrome were all present:

1) Hyperextensibility of the skin *(Fig. 1)*
2) Hypermobility of the joints *(Fig. 2)*
3) Severe bleeding from minor trauma — the main features of this case
4) Gross Kyphoscoliosis *(Fig. 3)*.

Fig. 4 shows the relative girths of the right and left forearm. This photograph was taken two days after admission. The swelling in the right forearm *(Fig. 5)* took three weeks to subside. The photograph also shows the marked Kyphoscoliosis. Angiomas are present in her arms.

The girl had a history of easy bruising from childhood but had never had such episodes of severe bleeding. The Kyphoscoliosis was first noticed in childhood but had become worse in her teens and she had evidence of respiratory insufficiency secondary to the marked chest deformity.

Two other members of her family had incomplete forms of the syndrome mainly

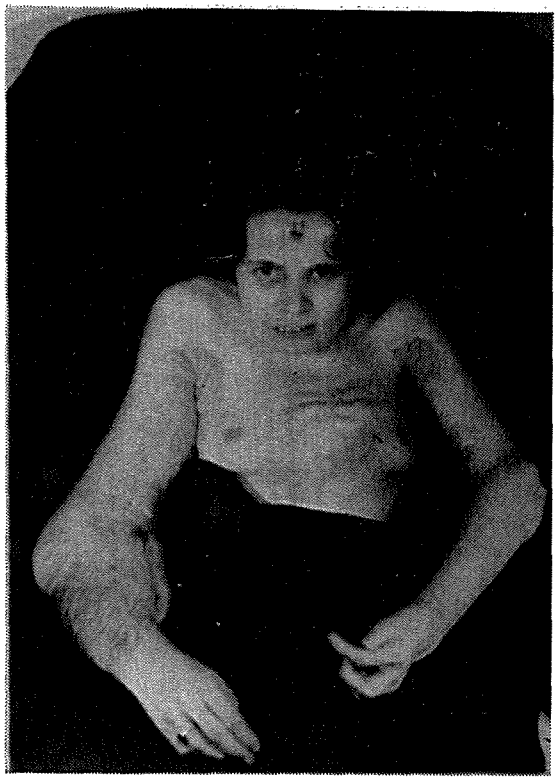

Fig. 4: Showing relative girths of right and left forearm and marked Kyphoscoliosis.

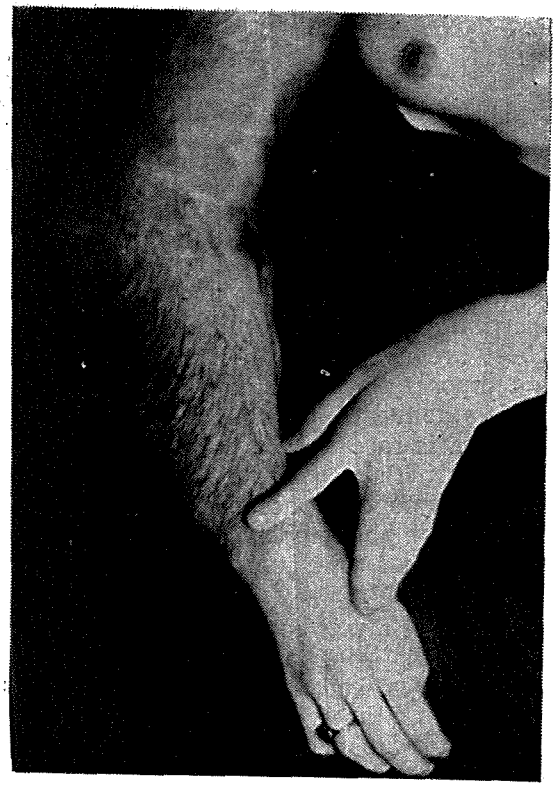

Fig. 5: Swelling of right forearm.

hyperextensibility of joints and hyperelastic skin but were otherwise normal.

Comment

This case illustrates the main features of the Ehlers-Danlos Syndrome. Severe bleeding causing shock had followed minor trauma.

A review of the world literature reveals no fewer than fifteen reports of death due to bleeding, in this Syndrome. The bleeding almost always followed trauma which would not, under normal conditions, have caused more than minor bruising. In a few cases, death had resulted from spontaneous gastro-intestinal bleeding, perforation of the bowel or spontaneous intra-abdominal and other large arterial rupture (McFarland and Fuller, 1964).

Less serious bleeding had been reported in several other cases. A particular type of bleeding reported is rectal bleeding following passage of hard stools. This is probably caused by splitting up of the anal mucosa caused by hard stools, owing to the underlying tissue friability.

The cause of the bleeding is the abnormally weak connective tissue which supports the blood vessels. A platelet defect also contributes to the abnormal bleeding tendency.

Acknowledgement

My thanks are due to Dr. G. Watkinson, former Director of the Medical Department at York Hospitals, for his encouragement to report this case.

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PURPURA IN THE NEWBORN

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In the newborn infant, petechiae with a distribution limited to the head and upper chest are not uncommon and are due to a temporary increase in venous pressure during delivery. In contrast, generalised purpura is rare and of the many possible causes, perhaps the most common is thrombocytopenia associated with idiopathic thrombocytopenic purpura (I.T.P.) in the mother. One such case was encountered recently.

The child was born from a 28-year old primigravida who in 1954, at the age of twelve years, had undergone splenectomy for I.T.P. At that time, she presented with a history of easy bruising and petechiae since the age of seven and at the menarche (at twelve years) there had been profuse menstrual bleeding which required blood transfusion. Her platelet count then had been around 4000/cu.mm. and after splenectomy it had risen to 78000/cu.mm. *(Fig. 1)*. Subsequently, her tendency to easy bruising had diminished and her menstrual flow had never been excessive.

The pregnancy was uneventful except for three episodes of slight gingival bleeding and occasional crops of generalised petechiae. She received no drugs except vitamins and minerals (Pregnavite). A blood test done when she was 34 weeks pregnant gave the following result: Hb: 13g% (88%), W.B.Cs: 15,500/cu.mm., N: 74%, L: 15%, M: 10%; Platelets: 50,000/cu.mm. Film showed normochromic R.B.Cs and no immature leucocytes. The bleeding time was 9 minutes and clotting time 5 minutes.

The child was born on 8.5.71 at the Blue Sisters Hospital by Caesarean section because of prolonged labour and anterior second degree placenta praevia. Two pints of blood had to be given because of bleeding before and during section. At operation the uterus was noted to be free from any subserous haemorrhages or petechiae and coagulation appeared normal. After delivery it was noted that the mother had petechiae over the face and the neck and scattered bruises. A repeat blood test done on the fourth post-operative day gave Hb: 9.6g% (65%), P.C.V. 33%, W.B.Cs: 48,000/cu.mm., Platelets 100,000/cu.mm. The film showed slight anisocytosis of normochromic R.B.Cc. The W.B.Cs were normal but some of the platelets were large and mostly agranular.

The male infant, weighing 3.6 kg (8 lb.), cried straightaway at birth. On examination he had generalised purpura and areas of ecchymosis *(Fig. 2)*. There was no hepatosplenomegaly. The femoral vein puncture site bled more briskly than usual and the Hess tourniquet test was positive. The report on the blood drawn at birth was: Hb: 14.5 g% (98%), W.B.Cs 23,5000/cu.mm.. N: 65%, L: 26%, M: 8%, Platelets: 20,000/cu.mm. Film stowed slight hypochromia and macrocytosis, few poikilocytes and basophilic R.B.Cs. There were no normoblasts and no immature WBCs.

The child was given 1 mg. Vitamin K_1 i.m. and nursed in an incubator. Although his general condition was satisfactory, his sucking reflex was poor and he had to be tube-fed for the first four days. On the fourth day of life the platelet count was found to be less than 10,000/cu.mm. and the bleeding time was considerably prolonged. Because of the real danger of intracranial haemorrhage the infant was started on oral Prednisone 15mg daily (2mg/lb), with gradual lowering of the dose over the next seven days. In spite of this, the platelets continued to drop to an alarmingly low count and the dosage had to be stepped up again and continued

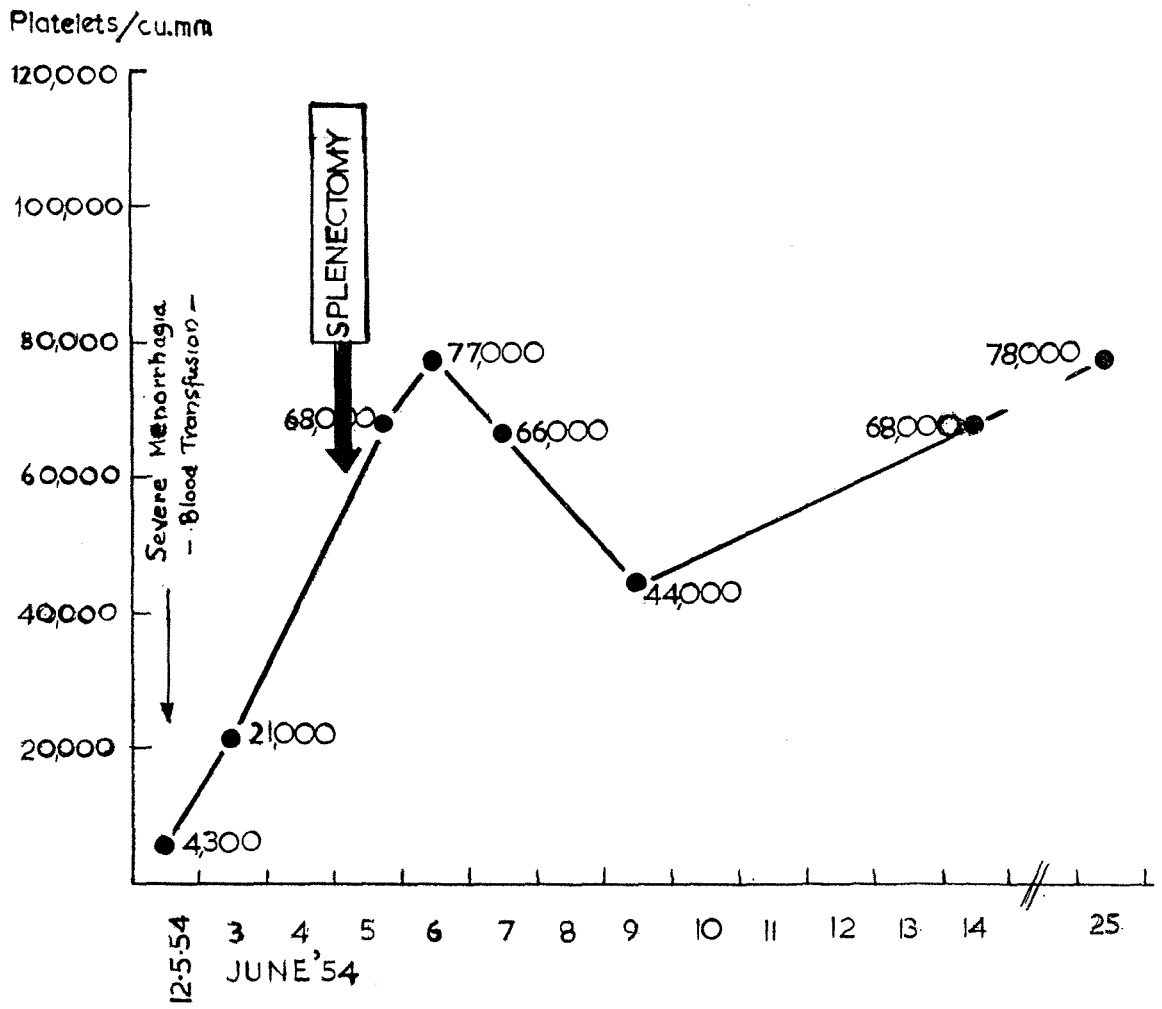

Fig.1 Idiopathic Thrombocytopenic Purpura in Infant's mother - treated by splenectomy when she was 12years old.

for over eight days *(Fig. 3)*. By the eighteenth day of life the count had gone up to 30,000/cu.mm. and the Prednisone was then gradually diminished by 5mg. every two weeks and finally stopped. The platelet count at three months of age was around 100,000/cu.mm.

Comments

The causes of neonatal thrombocytopenia are numerous *(see Table)*, but the disorders in which thrombocytopenia may occur in both mother and infant are only three, viz: idiopathic thrombocytopenic purpura (I.T.P.), drug-induced purpura and systemic lupus erythematosus.

The association of I.T.P. in the mother and her child and the demonstration of platelet agglutinins in both showed that the condition had an immunological basis (Jones *et al.*, 1961). It is due to the passage of platelet antibodies from the mother across the placenta to the child resulting in immunological destruction of the infant's platelets and neonatal purpura. The subject of I.T.P. in pregnancy has been well reviewed by Goodhue and Evans (1963) who found that the most important factor in determining whether the

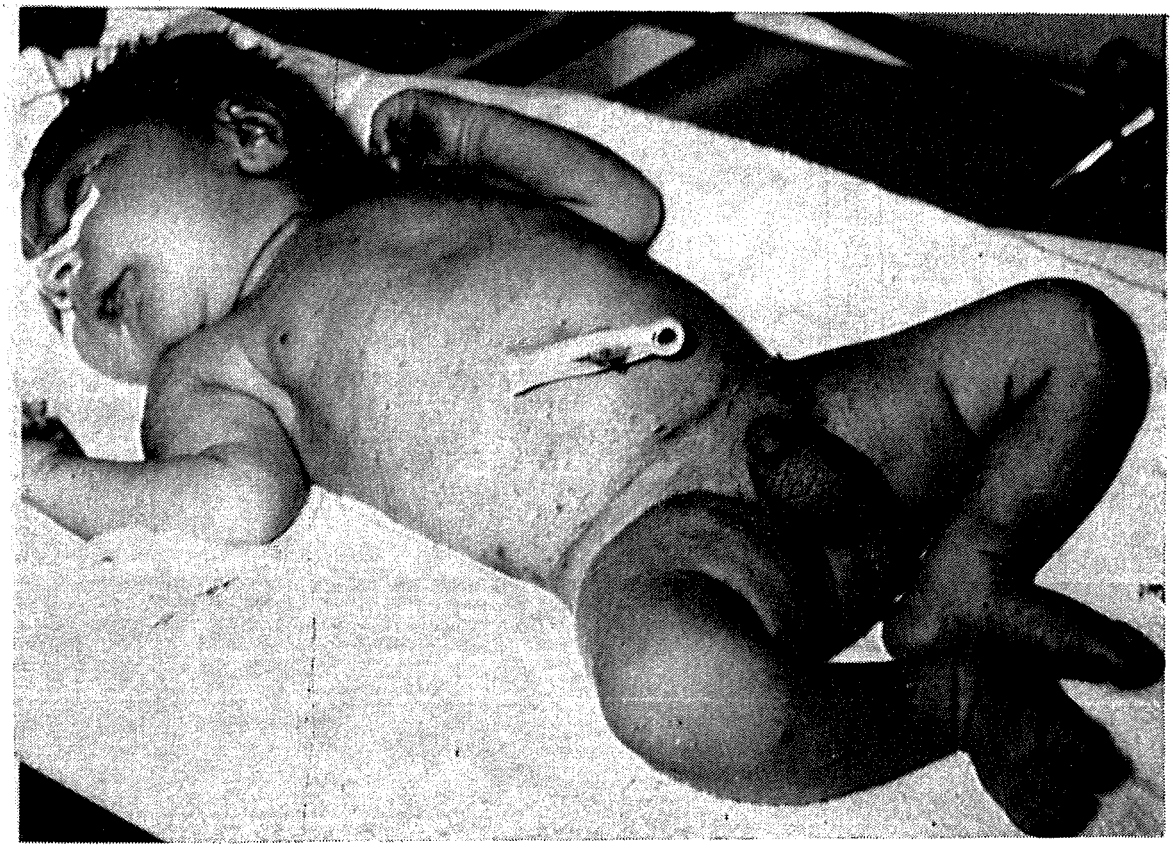

Fig. 2

infant of a mother with I.T.P. will be affected or not is the stage of activity of the mother's disease at the time of delivery. If the platelet count is normal, then the chances are that the infant will not be affected. However, it is still possible for the maternal platelet antibody to persist in mothers who have undergone splenectomy or who are in clinical remission, thus causing thrombocytopenia in their offspring.

Neonatal thrombocytopenia presents as generalised petechiae, purpuric spots and bleeding from various sites, e.g. maelena, haematuria and umbilical cord haemorrhage. Usually, the sole danger is from intracranial bleeding, which accounts for the estimated mortality of 8-10% (Anthony and Krivit, 1962). The maximal signs of bleeding occur soon after birth but in mild cases there may be minimal, delayed or no bleeding at all, in which case the only abnormally would be thrombocytopenia. The low platelet count may persist for up to four months but the risks of haemorrhage are greatest in the first week of life. Serological tests for platelet antibodies are difficult to perform and to interpret.

In most cases no treatment is needed as the condition is mild and resolves spontaneously. With severe thombocytopenia, one must treat actively because of the threat of intracranial bleeding. The methods of treatment available are: exchange transfusion with fresh blood (to remove platelet antibody from the infant), platelet transfusion and corticosteroids. Opinions differ as to the value of the latter, but whatever the treatment used it is difficult critically to evaluate its effectiveness because of the marked variations in the clinical severity of this condition. It is not surprising, therefore, that the value of steroids is still unproven. Splenectomy is a definite contraindication in young children because of the risk of overwhelming infection.

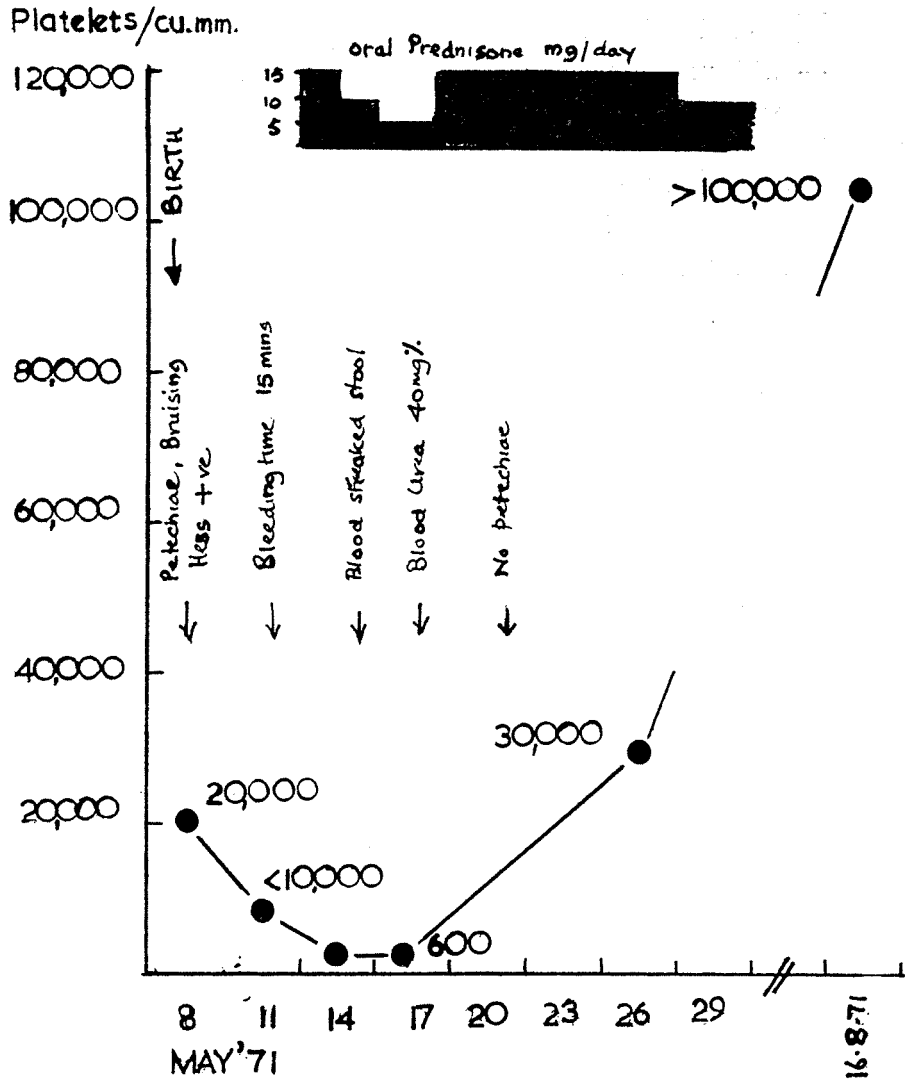

Fig.3 Thrombocytopenic Purpura in Neonate - Steroid Treatment.

Causes of Neonatal Thrombocytopenia
(modified from Oski and Naiman 1966)

(1) Immune disorders:
- (a) *Passive* — I.T.P.
  - — Drugs e.g.: Sulphas, Quinidine.
  - — Systemic lupus erythematosus.
- (b) *Active* — Isoimmune: Platelet-group incompatibility
  - — Associated with Rhesus Incompatibility.

(2) Infections:
- (a) Bacterial — Septicaemia
  - — Syphilis
- (b) Viral — Rubella
  - — Herpes simplex
  - — Cytomegalovirus
- (c) Protozoal — Toxoplasmosis

(3) Bone Marrow defects:
- (a) Megakaryocytic Hypoplasia
  - i) Isolated — Congenital hypoplastic thrombocytopenia.
  - ii) With Congenital Anomalies —

— absent radii
— rubella syndrone
— with pancytopenia (Fanconi's anaemia).

(b) Congenital Leukemia

(4) Hereditary Thrombocytopenias:

(a) Sex-Linked — including Aldrich's syndrome

(b) Autosomal — dominant and recessive forms.

(5) Miscellaneous:

i) Giant Haemangioma

ii) Disseminated Intravascular Coagulation.

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RADIOLOGY OF PYLORIC REFLUX

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Paper read at a special meeting at the New Charing Cross Hospital, London, on the 29th September 1971, to discuss the subject of Pyloric Regurgitation.

The possibility of duodeno-gastric reflux and its effect on the stomach have interested physicians for some time. Up to a few years ago the only radiological examination for the pylorus was the standard barium meal, which cannot show whether or not such regurgitation occurs. Workers have been searching for a suitable test for pyloric function and now various types are available.

Briefly bile regurgitation can be deduced by two methods:

A) Isotopes Studies

B) Radiology.

A) *Isotopes*

Various isotopes can be used which combine with bile salts — and presumably the pancreatic juices — and their presence in the stomach can be detected and quantitatively measured. Recently Rhodes, Barnado, Phillips, Ravelstad and Hofmann (1969) measured such bilious regurgitation after labelling of the bile acid pool using ^{14}C chenodeoxycholic acid by mouth.

B) From *Radiological studies* it can be inferred that if barium, which is introduced into the proximal duodenum, pours back into the stomach, then the duodenal juice should do the same.

There are two ways for introducing barium in the proximal duodenum:

a) *Antegrade intubation* — this usually follows the technique as described by Capper, Airth and Kilby (1966).

b) *Retrograde flow* — this entails filling the duodenum retrogradely through an enterostomy or an indwelling T-tube in the common bile duct in cholecystectomized patients as described by Nelson (1969) and Beneventano and Schein (1970).

When we started doing these studies, suitable isotopes were not available for us. Besides, being a radiologist, I was

more interested in radiological investigations. Consequently we relied on radiology for testing for pyloric competence.

I tried, unsuccessfully, retrograde duodenal filling on two occasions; one through an enterostomy, where I failed to fill the proximal part of the duodenum and in the second case through a T-tube in a cholecystectomized patient. As soon as the common bile duct was filled, the patient complained of pain which became severe with further injection. Presumably this pain was due to distention of the common bile duct; as a result, the examination was discontinued.

That leaves us with the antegrade route. This is the method that we have been using in my hospital up to now. The technique is similar to that described by Capper, Airth and Kilby (1966) with some modifications (Grech 1970). In a recent series the pyloric reflux test was followed by checking for oesophageal reflux or hiatus hernia (Beeley and Grech, 1971).

Briefly the examination consists in passing a fine soft rubber tube into the duodenum through which barium solution is injected into the proximal part of the duodenum and the competence of the pylorus assessed.

The findings can be recorded by one of the following methods:

a) Cineradiography
b) Conventional radiography
c) 70 m.m. Fluorography
d) Video-tape

a) *Cineradiography* entails such a high radiation dose as to prohibit its use.

b) *Conventional radiography* shows only the static condition at the time of exposure. To be more informative, the examination should be documented throughout.

c) *70 m.m. Fluorography*. It was found that rapid serial 70mm. intensifier fluorography gave adequate information and on the whole was preferable to conventional radiography. If required, the exposure can be at the rate of three or even six frames per second. There are also advantages of simultaneous screening facilities and reduction of the radiation dose to the patient compared with cine-radiography or conventional radiography.

d) *Video-tape*. The use of video-tape recorder fed from the television system enables the examination to be recorded fully. Not only the anatomy but the whole physiological action of the pylorus can be reproduced. This can then be played back and discussed between the clinician and radiologist.

Of these four methods, I feel that video-tape recording is the most informative.

It is realised that this technique is not the ideal method for assessing pyloric reflux. Some writers maintain that intubation across the pylorus may in itself produce insufficiency. This may be true with rigid plastic tubes as their stiffness may interfere with the normal pyloric action, but a fine soft rubber tubing, as the one we use, does not appear to hinder the pylorus.

Another drawback is that this examination is carried out with the patient in a fasting state; perhaps the examination should be extended and repeated after a test meal is given.

It was found impracticable to measure quantitatively the extent of regurgitation. The amount was roughly assessed by the personal observation of the radiologist. This might cause inaccuracies especially in serial examinations.

In spite of these limitations, it is felt that the examintion is worthwhile.

It is easy to perform,

It does not consume too much time,

It is not too uncomfortable to the patient.

You do not need any special equipment, so long as your radiology department is equipped for fluoroscopy with an image-intensifier and a television chain.

The investigation can be extended to include radiological study of the stomach and duodenum and also testing for a hiatus hernia and oesophageal reflux.

Of the 12 controls that we examined by this technique, 11 showed a competent pylorus. The twelfth, who was a 65 year old chronic bronchitic woman, showed moderate reflux. This seemed to confirm Capper's *et al.* (1966) and Nelson's (1969)

previous findings showing that the pylorus is normally competent.

It was also found that pyloric reflux can occur in patients suffering from:

a) Gastric ulcer
b) Alcoholic gastritis (Flint and Grech, 1970)
c) Duodenic-pyloric ulceration
d) Chronic non-specific lung disease (Beeley and Grech, 1971).

Most of the positive findings were, in the beginning of this study, confirmed by gastroscopy and/or by the gastrocamera. I do not think that we know yet the full significance of such regurgitation. Further studies are needed and perhaps such radiological findings should be correlated to a group of patients suffering from cholecystitis and pancreatic diseases — this might help in assessing this subject better.

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BRONCHOGRAPHY

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This is a review of bronchography as practised in St. Luke's Hospital, Malta, over the years 1969 and 1970 .

The inhalation technique is used. It is usual for one lung to be investigated at a time but bronchography of both sides has been carried out when indicated. No sedation prior to the examination is given. The intended procedure is explained to the patient in the X-Ray Department before the examination is carried out. Topical anaesthesia is used. The throat is sprayed with 5-10 cc of 2% Amethocaine Hydrocloride. The mouth and back of the throat are first sprayed, and then the larynx, taking care to spray as the patient is inhaling so that the mucosae of the larynx and main bronchi are anaesthetised, thus reducing the tendency of the patient to cough during the actual examination. The patient is asked to breath deeply at this stage. Once the throat and larynx are anaesthetised it is reassuring to the patient if he is asked to feel the back of the throat with his own index finger. This will ensure more cooperation by the patient later on. Dionosil — a white sterile oily contrast medium — is slowly injected via a curved non-pointed wide bore cannula on the back of the tongue which is held out wrapped in a piece of sterile gauze in the operator's left hand. The patient is asked to breathe, but not too deeply. In this way only the bronchi are filled and alveolar filling does not occur. One tries to avoid alveolar filling as when this happens, it will to some degree blur the outline of the smaller bronchi. About 200 c.c. of contrast medium are thus introduced into the bronchial tree .It is most essential to instruct the patient at this stage to refrain from coughing. While the contrast medium is being introduced, the patient is made to lie in the lateral decubitus to the side which is being investigated. This is done

to fill the upper lobe bronchi. He is then asked to bend backwards and then forwards, in this way filling the bronchi of the middle and lower lobes. Some of the Dionosil is inevitably swallowed.

Three views are taken with the patient standing up: an Antero-posterior, an Anterior oblique view and a Lateral view.

The patient is not screened during any part of the examination. (A postero-anterior and lateral views of the chest are taken prior to the introduction of the contrast medium in the bronchial tree). When the examination is completed and satisfactory radiographs have been obtained, the patient is asked to cough up as much as possible of the contrast medium, and instructed not to eat or drink for the next four hours. This will allow the effect of the topical anaesthesia to wear off.

Contraindications

1) Very poor general condition of the patient
2) Considerably reduced vital capacity
3) Idiosyncrasy to iodine.

Over the two years January 1969 - December 1970, 42 Bronchograms were carried out on 40 patients. Two patients had a repeat Bronchogram.

The indications for Bronchography in St. Luke's Hospital were:

1) To confirm the presence of bronchiectasis.
2) Suspicion of neoplasm.
3) Haemoptysis — cause unknown.
4) To define the relations of a lung lesion to the bronchial tree.

Of the 40 patients examined 33 were males and 7 females.

The number in each of the following age groups were:

Age 14–20 years	2 cases
Age 21–40 years	9 cases
Age 41–60 years	20 cases
Age 61–80 years	9 cases

28 cases were referred from the Medical Division, 8 from the Chest Clinic, 3 from the Surgical Wards and 1 from E.N.T.

The diagnoses reached through bronchography were as follows:

17 cases had Bronchiectasis .
14 cases had a normal bronchogram.
5 cases had an occlusive lesion.
3 cases had other lesions, including a mass in the lung tissue, not related to the bronchi.
1 case had an effusion.

Discussion

The inhalation technique has always been used in St. Luke's Hospital. Other methods, including intubation via the larynx under general anaesthesia, have not been used except in the rare cases of very young and uncooperative patients. The method of crico-thyroid puncture has not been used here. With this technique there is the risk of surgical emphysema due to air leaking through the puncture site. The inhalation technique is preferable because of its simplicity. Good demonstration of the upper lobe bronchi can also be obtained, provided the patient is put in the lateral decubitus to the side which is being investigated and enough time is allowed for the contrast medium to spread peripherally. Saxton and Strickland (1964) do not believe this to be so, but we have been able to demonstrate the upper lobe branch in all cases. Another advantage of this inhalation technique is that one may if necessary obtain a laryngogram — the uniform coating of the upper respiratory tract with contrast medium. Quiet breathing is essential during the introduction of the contrast medium as the movement of the medium along the smaller bronchi is dependent on the force of the inspiratory effort (Holden, 1957).

Although no sedation is given prior to the examination moderate basal sedation will be advantageous provided the condition of the patient allows it.

Out of 40 patients who were investigated by bronchography, 26 cases had a definite bronchial or lung lesion. 14 cases had a normal bronchogram.

The advantage of bronchography in the investigation of a lung or bronchial lesion it that demonstration of the lesion is clear cut with good definition. The amount of exposure to X-Rays is minimal and is equivalent to 3 exposures for a

chest X-Ray which are of minimal duration. This is in contrast to tomography where the different cuts at different levels are taken with each exposure lasting between 1 and 3 seconds. The disadvantage, relative to tomography, is that the procedure is more uncomfortable for the patient. Neither bronchography nor tomography will supersede each other as a means of investigating a lung lesion. Bronchography and tomography are complementary. Tomography is in fact preferable in investigation of certain lung lesions i.e.: Hamartomas where areas of calcification within this benign lung tumour can be demonstrated.

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BLOOD SUGAR IN EXECUTIVES
An observational study

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Summary

The blood sugars of presumptively healthy male executives attending for a routine check up have been analysed. One group of 4227 men had their random blood sugar measured and another of 634 had blood sugar measured two hours after a 50 g. glucose load. The two groups were comparable in all respects except for mean and variance of blood sugar and the incidence of glycosuria.

Mean blood sugar increases with age. This effect may be altered by glucose loading. It may be due to an increase in pathological hyperglycaemia rather than to a pathological effect of age. A family history of diabetes leads to higher mean blood sugar levels.

No correlation was found between relative weight, exercise, stress, cigarette smoking and alcohol consumption.

The results are compared with those from other surveys. They support the suggestion that executives as a group may have different mean blood sugar levels from other occupational groups. However, owing to problems of selection and different methodology, this cannot be regarded as proved.

Introduction

The Institute of Directors Medical Centre was opened in June 1964 with the aim of providing health check ups for business executives. Executives of varying status from companies of all sizes are seen and they come either as 'individuals' at their own request or as 'groups' referred by their firms.

The examination includes a detailed history, a complete physical examination and a battery of screening tests. Chemical pathology is done by one laboratory using auto-analyser processing while X-rays and E.C.Gs. are reported on by the Centre's consultants. Great pains are taken to see that reasonable uniformity is obtained and kept throughout.

This report presents a study of the blood sugars of 4861 reputedly healthy male executives attending the Medical Centre for the first time for a routine health check up.

It is to be emphasised that the group studied may not be representative of the entire executive population since many individuals have come for examination of their own free will. Such self-selected people may be far from representative of the group from which they have been drawn.

It was decided to perform blood sugar estimations routinely only in 1967. At first a Lucozade drink containing 50 gms of glucose was given followed by blood sugar estimation 2 hours later. For a variety of reasons this method was abandoned and a random blood sugar level was taken. The sample studied therefore consists of 4227 random (Non-Lucozade group) and 634 loaded (Lucozade group) examinations.

These two groups were comparable in respect of age, relative weight, cigarette consumption, status and stress but they were found to differ significantly in the mean and variance of their blood sugars *(Table 1)* and in the incidence of glycosuria *(Table 2)*.

Glycosuria

	+	−	*Total*
Non-Lucozade	93 (2%)	4143 (98%)	4227
Lucozade	81 (13%)	553 (87%)	634

$x^2 = 178.6$ on 1° freedom; $P < 0.001$

Table 2. Presence/Absence of Glycosuria in Lucozade and Non-Lucozade Groups.

Blood Sugar by Age

Evidence has accumulated in the past few years to suggest that in the general population, blood sugar increases with advancing age [Dozefsky *et al* (1965), Hayner *et al* (1965), Spiegelman and Marks (1946), Cheraskin *et al* (1966)]. This has been confirmed in the present study in the Non-Lucozade group but not in the Lucozade group *(Table 3)*.

Age has been recorded as the age at last birthday. The mean age for the Non-Lucozade group is 46.32 and for the Lucozade group it is 46.13.

In the Non-Lucozade group, the blood sugar levels vary widely; 10 persons have a level less than 60 mg.% and 8 a level of over 200 mg.%. The mean blood sugar is 94.81 mg.% with a standard deviation of 15.13. The relationship between age and blood sugar levels is shown graphically in *Fig. 1*.

There is a difference of 11.93 mg.% in the blood sugar between the oldest and the youngest age group and this is statistically significant ($P < 0.01$). The corre-

Blood sugar in mg%

	<69	*—79*	*—89*	*—99*	*—109*	*—119*	*—139*	*140+*	*Total*
Non-Lucozade	36 (1)	308 (7)	1272 (30)	1239 (29)	880 (21)	275 (7)	164 (4)	53 (1)	4227
Lucozade	71 (11)	135 (21)	157 (25)	106 (17)	84 (13)	35 (6)	27 (5)	19 (2)	634

$x^2 = 444.2$ on 7° freedom; $P < 0.001$

Table 1. The Blood Sugar Distribution of Lucozade and Non-Lucozade Groups. Figures in brackets are percentages.

Age	Non-Lucozade Nos.	Non-Lucozade Mean Blood Sugar	Non-Lucozade S.D.	Lucozade Nos.	Lucozade Mean Blood Sugar	Lucozade S.D.
<25	33	89.12	13,33	4	102.50	25.84
25–34	512	92.12	13.33	61	86.97	22.23
35–44	1421	93.74	13.65	245	90.67	19.45
45–54	1414	95.07	15.50	192	89.09	23.66
55–64	762	97.18	17.61	118	88.53	21.63
65+	84	101.05	19.52	14	101.00	34.88
Total	4227	94.81	15.13	634	89.74	21.94

Table 3. Mean Blood Sugars and standard Deviations by Age in Lucozade and Non-Lucozade Groups.

lation coefficient r = 0.11, the regression coefficient b = 0.16 and 't' = 7.05 ($P < 0.001$). These results are in very close accord with some of the previous studies. Cheraskin *et al* (1966) in a diabetes detection drive in Birmingham, Alabama give a correlation coefficient of r = 0.1141 and $P < 0.0001$.

Furthermore, it is to be noted, as was indeed noted in the above mentioned Alabama survey, that the standard deviations for the age groups also increase with advancing age (if allowance is made for the exception in the 25-34 age group) *(Table 3)*. This means that in the later years there is a greater tendency for the blood sugar to spread from the mean than in the earlier years.

The significance of this finding needs some discussion. It has often been postulated that the increase of blood sugar with advancing age is a physiological process. This may very well be, but doubts have been recently shed by Cheraskin (1966) and the present study seems to confirm them. *Figure 2* shows that at one standard deviation away and below the mean, the difference between blood sugars in the over 65s and the under 25s is 5.74 (A) and if the under 25s are excluded the difference between the highest and the lowest levels is merely 1.96 mg.%. On the other

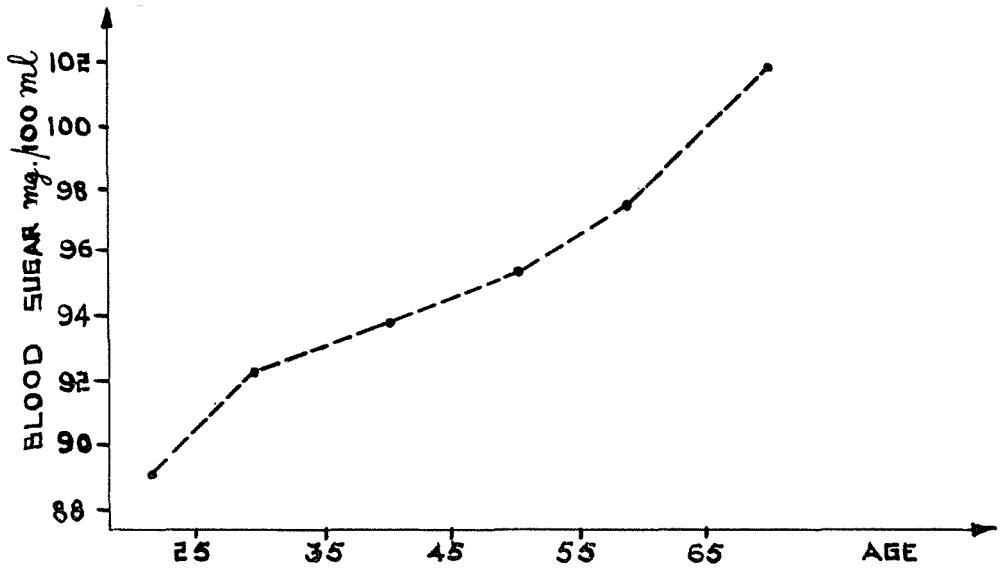

Fig. 1. Correlation between Blood Sugar and Age in Non-Lucozade Groups.

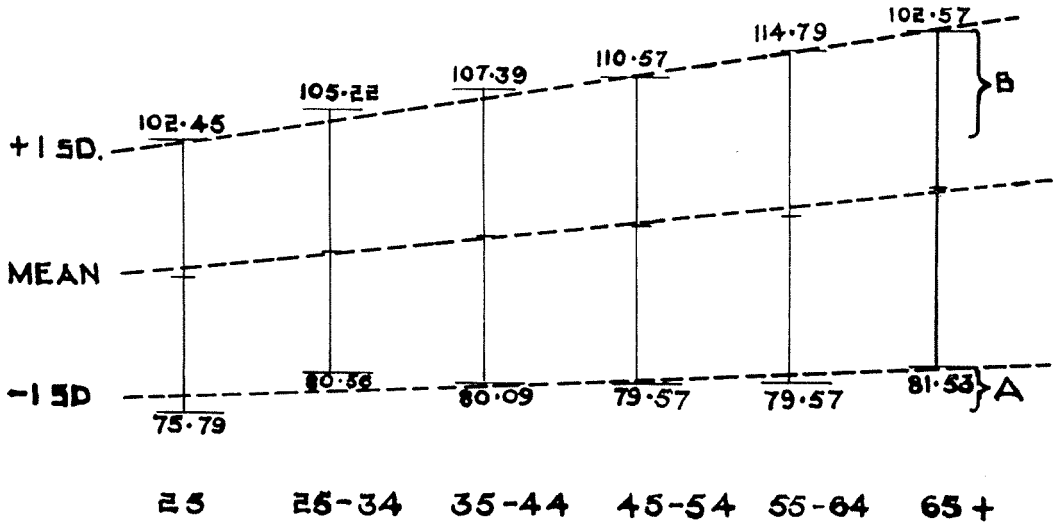

Fig. 2. Mean Blood Sugars ∓ 1 Standard Deviation in Non-Lucozade Group. (A=81.53 — 75.59 = 5.74; B = 120.57 — 102.45 = 18.12).

hand, at 1 standard deviation away from and above the mean, the difference is 18.12 mg.% (B) – a high figure in comparison. In other words, the gradient of the blood sugars at +1 S.D. is much steeper than the gradient at –1 S.D. so that the mean blood sugar is not being *pushed* upwards by an individual increase in each blood sugar but is being *pulled* upwards by an ever-increasing number of hyperglycaemics appearing with each successive age group.

Kent *et al* (1968) in an analysis of tests for diabetes in 250,000 persons screened for diabetes noted that "Although the results showed that each ascending decade of age had a higher percentage of persons who were considered to have diabetes, the majority of persons even in their 80's had normal tests". This seems to support the theory that hyperglycaemia becomes a relatively more common pathological finding with advancing age and therefore an increasing blood glucose is not part of the phenomenon of physiological ageing.

In the Lucozade group, the blood sugar levels also vary widely; 8 persons have a level less than 60 mg.% and 3 a level of over 200 mg.%. The mean blood sugar is 89.74 mg.% with a standard deviation of 21.94. No relationship between blood sugar and increasing age could be detected. Apparently loading with sugar counteracts the effects of age on blood sugar. No explanation for this is readily available.

It is interesting to note that the mean blood sugar for the Lucozade is significantly lower than that for the Non-Lucozade group, and that the distribution curves *(Fig. 3)* for the 2 groups show the following differences:

(a) The Lucozade curve has a shorter mode.

(b) The Lucozade curve is wider and especially so at the base.

(c) The Lucozade curve is shifted to the left of the Non-Lucozade one.

Such differences may be explained if it is remembered that

(i) In the non-diabetic individual, loading with sugar tends to lower the blood sugar below the fasting level at the end of 2 hours.

(ii) In the diabetic, after loading with sugar there is a tendency for the blood sugar to remain above the fasting level (and very often much higher).

As the fasting sugar is on an average lower than the random blood sugar, the first statement may explain the shorter mode and the shift to the left of the Lucozade group as compared with the

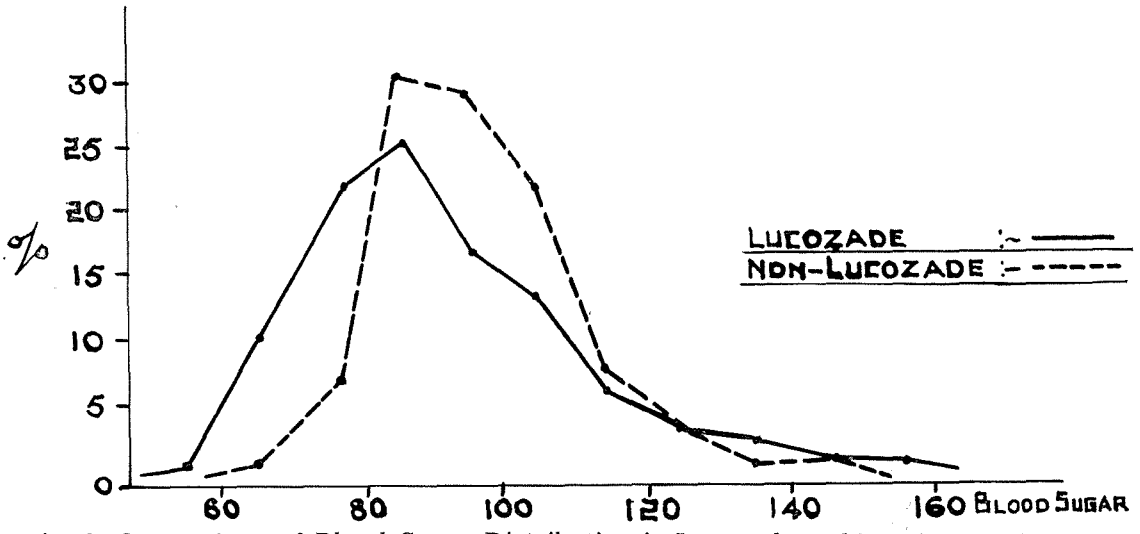

Fig. 3. Comparison of Blood Sugar Distribution in Lucozade and Non-Lucozade Groups.

Non-Lucozade one — this occurring in the range of 'normal' blood sugar levels. The second statement explains the shift to the right at the base in the higher range of blood sugar (? the abnormally high ones).

Blood Sugar by Weight

Weight has been recorded as Relative Weight, defined here as observed weight (with minimal clothing on) expressed as a percentage of the expected weight. Levels for the latter have been obtained from the American Metropolitan Life Insurance Company figures corrected for height and age.

Table 4 sets out the relevant details for both the Lucozade and the Non-Lucozade groups. It will be seen that 2651 (62%) in the Non-Lucozade and 381 (60%) in the Lucozade group are within ∓ 10% of the expected weight; 27% and 29% respectively are overweight and what is very surprising for an affluent occupation 10% and 11% respectively are underweight (at least by American standards).

No pattern in the mean blood sugars for the different relative weights was discerned in either group. There is a higher sugar level for the grossly obese (130 + %) and a lower blood sugar in the underweight (<80%) than for any other

	Non-Lucozade			*Lucozade*		
Relative Weight	*Mean Blood Sugar*	*Nos.*	*S.D.*	*Mean Blood Sugar*	*Nos.*	*S.D.*
<80%	93.89	64	14.77	86.62	16	17.65
80–89	95.86	346	18.79	89.92	50	16.62
90–99	94.79	1155	14.29	88.21	154	22.55
100–109	94.52	1496	14.09	90.14	227	23.16
110–119	94.40	795	13.80	91.02	123	20.67
120–129	95.42	274	6.98	89.07	44	24.20
130+	98.14	96	23.10	92.65	20	22.19
Total	94.81	4226	15.13	89.74	634	21.94

Table 4. Mean Blood Sugars and Standard Deviations by Relative Weight in Lucozade and Non-Lucozade Groups.

weights in both groups, but such differences have not been found to be significant at the 0.05 level.

Previous studies have observed a modest correlation between obesity and glucose levels (Hollister *et al* 1967; Cheraskin *et al* 1967; Albrink and Meigs 1964) and it was expected that a better relationship between blood sugar and weight should have been obtained here. It is possible, however, that weight when denuded of its height and age bias (as has been done in this study) bears no relationship to blood sugar.

It is significant to compare such a finding with that noted by O'Sullivan *et al* in the Oxford Epidemiological Study (1965). "The relationship of the initial postprandial blood sugar to body weight was found to be insignificant by a multiple regression analysis which included age, height and sex as other variables."

Family History

A detailed family history of disease of each executive was taken at the medical examination. Out of the Non-Lucozade group of 4227, 105 gave a family history of diabetes. The mean blood sugar for these was 99.91 mg.% with a standard deviation of 15.13 as against 94.68 mg.% and a standard deviation of 14.75 for those with a negative history. This difference is very highly significant (P <0.001).

In the Lucozade group, the mean blood sugar level for those with a positive history was 98.75 mg.% with standard deviation of 21.36 as against 89.37 and 21.94 respectively for those with a negative history. This is significant at the 0.05 level. Table 5 summarises the data.

Except for the under 25's and the over 65's, where the mean blood sugar levels were either unobtainable or unreliable (too few executives), the higher level in those with a positive history was evident throughout the age groups in the Non-Lucozade group *(Table 6)*. Small numbers in some of the age groups also accounted for similarly unreliable means in the Lucozade group but on the whole, the same trend was noticeable.

Status

Status was recorded in 3 grades — top, middle and junior according to the position the executive held in the company. In the Non-Lucozade group, status was not recorded in 24; 2721 held top, 1441 middle and 41 junior positions. In the Lucozade group, status was not recorded in 3; 435 held top, 195 middle and only 1 a junior post.

The middle executive has a signific-

	Mean Blood Sugar Family History				
	+	–	*Difference*	*"t"*	*P*
Non-Lucozade	99.91	94.68	5.23	3.50	<0.001
Lucozade	98.75	89.37	9.38	2.10	<0.05
Total	99.61	94.00	5.61	3.88	<0.001

Table 5. Mean Blood Sugar in Lucozade and Non-Lucozade Groups by Family History of Diabetes.

		Age					
		<25	*—34*	*—44*	*—54*	*—64*	*65+*
Family	+	*	94.31	99.46	97.19	112.57	96.54*
History	–	89.12	92.85	93.60	95.01	96.85	101.16

Table 6. Mean Blood Sugar by Age and Family History of Diabetes.
* mean blood sugar unobtainable or unreliable.

antly higher mean blood sugar than either the top ($P < 0.05$) or the junior executive ($P < 0.01$) in the Non-Lucozade group. In the loaded group, a similar trend is apparent but the figures are too small to give a significant result. Table 7 shows the relevant data for the Non-Lucozade group

Status	*Number*	*Mean Blood Sugar*	*Standard Deviation*
Top	2721 (64%)	94.54	15.18
Middle	1441 (34%)	95.56	15.08
Junior	41 (1%)	89.98	12.14
Middle vs Top		"t"=2.07;	P<0.05
Middle vs Junior		"t"=2.88;	P<0.01

Table 7. Mean Blood Sugar by Executive Status in the Non-Lucozade Group.

for whom the rest of this part of the discussion applies. The difference in sugar levels between the middle and junior grades can presumably be explained as an age effect. In the junior grade, the majority (68%) of the population are under 35 years while in the middle grade, the majority (81%) are over 35. But age does not explain the difference in the sugar levels between the middle and the top executives since the age distributions of the two are similar. This is shown even better in Table 8 where it can be seen that age for age, except in the under 25's where the number of executives is too small to give reliable means, the mean blood sugar for the middle is consistently higher than that for the top executive. The possibility of a genetic difference in the two cannot be excluded. It may be that the executives who are destined to go to the top are made of a different fibre from the executives who can only make middle grade.

Other Parameters

No significant relationship was noted between blood sugar and exercise, stress, cigarette smoking or alcohol consumption.

Executives: A special Population?

It was noticed in the Bedford survey (Butterfield *et al* 1964) that when the recognized diabetics and females in the town had been excluded, the incidence of glycosuria was 5.9% — three times the incidence in our corresponding Non-Lucozade population.

When a representative sample of the population of Bedford was loaded with glucose (as indeed was done in our Lucozade group) the incidence was found to be 30%. In the executive population, the figure is 13%.

After loading in the Bedford survey, 12-14% of a supposedly normal adult population showed a blood sugar of more than 120 mg/100mls. The corresponding Lucozade figure is 7.25% *(Table 9)*.

	Executives	*Bedford*
Random Glycosurics	2%	5.9%
Loaded Glycosurics	13%	30%
Loaded Blood Sugar > 120 mg.	7.25%	12–14%

Table 9. Comparison between Executive and Bedford Populations.

It may be argued that in the Bedford survey, estimations of blood sugar were made on capillary blood whereas in our study, they were made on venous samples. This might explain the discrepancy in the figures; however, the same cannot be said for the difference in incidences of glycosuria since the same method of examination of the urine has been employed. The age structure of the two populations is, moreover, very similar.

Status	*<25*	*—34*	*—44*	*—54*	*—64*	*65+*
Top	*	92.42	93.37	94.35	96.27	101.01
Middle	87.36	93.53	94.42	96.27	100.35	106.86

Table 8. Mean Blood Sugar by Age and Executive Status.
* mean probably unreliable.

Do executives really get less glycosuria and lower blood sugar on average than the general population? Or is it that executives, being perhaps more conscious of their health, undertake more frequently routine medical examinations, glycosuria and hyperglycaemia are detected earlier and therefore fewer unrecognized cases enter into studies of this kind?

If, on the other hand, a true difference in incidence exists, is this due to a change in social patterns? How much is it due to exercise or lack of it, and/or to eating habits in affluent conditions? Are there inherent metabolic or genetic factors?

To answer these questions, an adequate comparison of a large enough age-standardised, representative sample of the executive population with a similar sample, or samples, of non-executives needs to be made.

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CHOLERA IN WEST AFRICA

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In 1968 the El Tor variant of the cholera vibrio started on a long journey. From its home in India and Pakistan it moved to Indonesia and then across to Iran whence it entered the Soviet Union. Middle East countries were then attacked, including Egypt, but for a while the authorities there denied that the disease had reached that country and insisted that the cases which occurred were those of "summer diarrhoea".

In August 1970 El Tor cholera appeared in Guinea, the first time that it had been diagnosed south of the Sahara. Again, there was great reluctance to accept facts, and newspaper reports and eye witness accounts were branded as part of an "imperialist plot" to discredit the country. As a result international help was late in coming and control efforts were badly organised.

From Guinea the disease spread to Senegal, Mali, Sierra Leone, the Ivory Coast, Ghana, Niger and Liberia and towards November 1970 it entered Nigeria where it quickly established itself in Lagos and Ibadan before spreading in irregular fashion over the country. The big commercial city of Kano in the extreme north was reached in February 1971 with an outbreak of epidemic proportions and numerous unrecorded deaths. It may have come up from the south or down along the trade routes from Niger. But however it happened, the disease hit Kano at the time of the Hajj or pilgrimage to Mecca when the international airport is virtually taken over by the thousands of pilgrims and their relatives who then wait patiently for their return days or weeks later. Sanitary provision is utterly inadequate and conditions are ideal for the spread of intestinal disease.

After a few months the incidence of the disease in Nigeria decreased, but in July 1971 there was a sudden flare-up in the villages near the university town of Zaria and several of these were abandoned. To date 18 countries, mainly in West and Central Africa but some also in East Africa, have reported the disease.

Here are some figures: 35,000 cases have been reported in the first six months of this year (6,000 in Nigeria) with 6,300 deaths (W.H.O. 1971; U.S. Pub. Hlth. Serv. Smallpox eradication programme 1971). 3,000 cases occurred in black Africa in the first week in September, including 2,500 in Nigeria and 3 (the first recorded) in the Gambia (Bruce-Chwatt L.J., 1971). All these figures are ,of course, rough ones for obvious reasons, and it has been estimated that during 1971 there must have been not less than one million cases in tropical Africa alone (Bruce-Chwatt L.J., 1971).

El Tor cholera is peculiar in that the disease is relatively mild and that incubation and contact carriers are common. This, coupled with the poor sanitary conditions which are the rule in black Africa, makes it almost certain that the disease will not be eradicated for many years, at least from the big towns like Lagos, Kano and Accra.

Clinically the disease runs through the well known stages of evacuation, collapse and reaction or death. It strikes with great suddenness and manifests itself by the "painless passage of pints of pale fluid" (Adams and Maegraith, 1966).

The visitation has been energetically treated by most Governments as far as their resources allowed. Towns and villages have been cleaned up, flies attacked and health propaganda diffused. The victims themselves, if they were lucky to fall ill within reach of a hospital, were nursed in emergency wards often in the open under a temporary palm roof. The beds were

simple structures made of two pieces of canvas slung on a wooden trellis with a gap between for the buttocks, beneath which was a pail with disinfectant. The extreme dehydration was treated by giving intravenous fluids, mainly saline, for 1 or 2 days and amounts of 18 or 20 litres were often reached. After that, oral fluids were sufficient. Cholera is, however, not a hospital disease but a *disease of the railway station and of the wayside* and the important point is to pour fluid into the veins, even if it is only boiled river water to which salt is added. The moral is: do not be too fussy about the nature of the fluid.

When the vomiting stopped (and in Nigeria it was never a big problem) tetracycline was often given by mouth. Diagnosis was confirmed in the bigger cities by examination and culture of rectal swabs.

Anti-cholera vaccine flown in from all over the world has been widely used to protect the population but its help in controlling the spread of the disease has not been clear and it is generally considered that inoculations against cholera, which have to be repeated at least every six months, play a relatively small part in personal protection and hence in controlling or stopping epidemics.

As regards prevention, this is a matter of sanitary control and supervision of ships and aircraft coming from infected countries and of isolation of suspected cases. But this should be thorough. I myself came to Malta on two occasions recently having left Kano a few hours previously. There was no health check at the airport, presumably because the plane had flown in from Rome.

To sum up: a major international health hazard is developing before our eyes. We may be underestimating its importance (Brit. Med. J., 1971).

References

ADAMS and MAEGRAITH, Clinical Tropical Diseases, ELBS Edition, 1966, p. 67

Brit. Med. J. 3 July 1971 p. 1

BRUCE CHWATT L.J., Brit. Med. J. *3*, 532.

U.S. Public Health Service, Centre for disease control, Smallpox Eradication Programme Report, 1971, 5

West Africa No. 2832, p. 1123

W.H.O. Press Release No. 28, June 1971

MEDICAL NEWS

The reverberations of the 12th Annual Clinical Meeting of the B.M.A. which was held in Malta in 1969 now come to a fitting conclusion, though perhaps, in a way, what we now report will ensure that its effects should be long lasting indeed. Through the fact that attendance was so good and that matters were, by the whole team concerned, so efficiently organised when the Malta Branch wound up the activities of the meeting from the financial point of view it found itself possessed of a balance of slightly over fifteen hundred pounds. It was the view of the B.M.A. Council that these funds should be used for the furtherance of medical studies and ever to maintain our links with Britain and the Commonwealth, so it decided to endow a Travelling Fellowship which would on alternate years bring to us an eminent lecturer from Britain or the Commonwealth or support travel abroad by a Malta B.M.A. member who would on his return lecture on his work. It was thought this scheme would work more smoothly if the University would give it its blessing and support. The University accepted gladly to be so linked with the B.M.A. and so the project is now realised and the B.M.A.-University Travelling Fellowship will soon become an accomplished and familiar fact. We look forward with pleasure to welcoming our first guest under this arrangement or to speed on his way yet some other wandering scholar.

We congratulate:

The following on their graduating as Doctors of Medicine in November:

Mr. Carmel Agius of Sliema; Mr. Godfrey Agius of Pawla; Mr. Bernard Anastasi of Sliema; Mr. Martin Anthony-Williams of Sierra Leone; Mr. John Aquilina of Balzan; Mr. Anthony P. Azzopardi of Gżira; Mr. Michael Azzopardi of Sta. Venera; Mr. Anton Bencini of Sliema; Mr. Carmel Brincat of Qormi; Mr. Joseph Carabott Damato of Pawla; Mr. Paul Chetcuti of Mosta; Mr. Paul Cuschieri of Sliema; Mr. Anthony Debono of Rabat; Mr. Robert Farrugia Randon, the son of Dr. Arialdo Farrugia, of Tarxien; Mr. Alexander Felice of Valletta; Mr. Anthony Felice of Valletta; Mr. Arthur Felice of Zabbar; Mr. Charles Gauci of Hamrun; Mr. Joseph Attard Grech of Birkirkara; Mr. Albert Griscti Soler of Sliema; Mr. Anthony Leone Ganado of Sliema; Miss Rosette Micallef of Cospicua; Mr. Richard Miller of St. Julian's; Mr. Joseph Psaila, the son of Dr. Joseph Psaila of San Gwann; Mr. Carmel Sciberras of Hamrun; Mr. Devendra Sharma of Delhi, India; Mr. Charles Swain of Valletta; Mr. Mario Tabone of Sta. Venera; Mr. George Warrington of Birkirkara; and Mr. Valhmor Zammit of Birkirkara.

Professor George A. Żarb on his appointment to the Chairmanship of the Department of Prosthodontics in the Faculty of Dentistry at the University of Toronto; he is also head of Restorative Dentistry at the Toronto General Hospital and Consultant to the Maxillo-Facial Unit at the Hospital for Sick Children;

Dr. Paul F. Bonnici on his nomination as Senior Member of the Memorial Hospital of Culver City, Southern California. Dr. Bonnici has been working in the Los Angeles area for three years;

Professor Anthony Jaccarini on his appointment to the Chair of Pharmacy and headship of the department of pharmacy at our university;

Dr. George Boffa on his being admitted to the Fellowships in Anaesthesia of the Royal College of Surgeons of Ireland and of that of England;

Dr. J. Rizzo Naudi on his election to the Fellowship of the Royal College of Physicians of Edinburgh;

Dr. Roy Schembri Wismayer on getingt the Diploma in Clinical Pathology at the Royal Postgraduate Medical School;

Mr. R. G. Parnis, until recently Senior Lecturer in Surgery at Ahmadu Bello University in Zaria, Nigeria, on his appointment as consultant Surgeon at St. Luke's;

Dr. Vanni Cremona on his appointment to a full time lectureship in the Department of Obstetrics at the university;

Mr. Nicholas Vella-Bardon on getting the "Diploma in Public Dentistry", whilst on a W.H.O. fellowship at Dundee University;

The Malta Branch of the British Medical Association met on the 21st July at the School for Nurses. Three films on various aspects of anaesthesia were viewed. On the 18th August the Branch had the pleasure of meeting again Dr. Maurice Cauchi, back home from Australia for a short break. He gave a lecture on "Some aspects of Immunology with special reference to Tumours". On the 11th October, the Branch heard Dr. G. Hamilton Fairley, of Bart's, the Chester Beatty Cancer Research Institute and the Royal Marsden speak on "Medical Management of Malignant Disease". On the 12th Dr. Fairley also spoke on "The modern treatment of Hodgkin's disease and other lymphomas". On the 26th October, Dr. Michael D. O'Brien of the Newcastle General Hospital addressed the Branch on "Carotid Artery Disease". At the St. Luke's Day meeting, which had to be postponed to the 18th November, the prize in the B.M.A. (Malta Branch) 1970 Essay Competition was awarded to Dr. Paul Cassar for his paper entitled "The Cult and Iconography of Saints Cosmas and Damian in the Maltese Islands". This work, at least as interesting to historians and artists as it is to the medical profession, is exhaustive in character and is another example of Dr. Cassar's highly scientific way of writing history. The St. Luke's Day Lecture was given by Dr. Wallace P. Gulia, who spoke on "Medico-Social Legislation in Malta". It was an address such as audiences always hope to but seldom have the fortune of listening to. Dr. Gulia did not read his material but spoke from very brief notes, holding everybody's attention from beginning to end. His revelations of how legislation is drawn up was particularly appreciated: a saving clause was once found at a quarter to midnight on a particular day, which the speaker remembered since the day had been his birthday. He had hoped to celebrate it with a good dinner but the feasting had to give way to "the exigencies of the service". Dr. C.O. Carter, the director of the Clinical Genetics Unit of the Medical Research Council at the Institute of Child Health in London, on a visit to Malta gave a lecture to doctors on "Genetic Counselling" at the Medical School. The day after he spoke on genetics at the British Council centre in Valletta.

The Second P.P. Debono Memorial lecture was given, under the auspices of "The Association of Surgeons and Physicians of Malta" by professor Walter Ganado who, of course, had known "Pietru Pawl" (to so many still remembered, like Michelangelo or Leonardo, just by his Christian name) very well personally. Professor Ganado spoke on "The Logic of the teaching of Medicine".

Professor George Camilleri delivered the opening day address for the university this year. He spoke of "The training of the dental health team".

The Association of Clinical Pathologists of Great Britain will be holding its annual meeting in Malta next April. We look forward to greeting some of Britain's most eminent Microbiologists and Pathologists.

Between the 26th and the 29th September, the Società Oftalmologica Italiana held in Malta its 53rd Congress. The idea that this society should meet outside its own country had been born at the time the Italian E.N.T. association had met here. The materialisation of the proposal was largely due to the initiative and interest taken by Dr. Francis Damato, who had close contact with his Italian colleagues, and to the ready acceptance of Professor G. B. Bietti, the Society's president. A great amount of organising work was carried out locally by an ad hoc committee, under the auspices of the Medical Association of Malta. Good work was done at the scientific sessions. At the inaugural meeting Professor Bietti bitterly lamented the demoting of Ophthalmology in the medical curriculum in Italy, where something similar to what has happened in Malta has occurred. The social events went off with a swing, especially the concluding banquet at the Corinthia.

We were glad to learn that Dr. Francis Damato has been elected an Honorary Member of the Società Oftalmologica Italiana ,an honour which he shares with only 17 others. The Society, honouring him, also meant, of course, to honour his colleagues in Malta.

The 18th Annual Congress of the International Association of Dental Students was held in Malta last July. This Congress (towards which this Gazette had made a financial contribution) also was a great success.

A group mainly of Italian doctors also met in Malta to hold what were called "Giornate di Diabetologia del Mediterraneo" in October.

Professor J. D. Knox of the University of Dundee addressed a meeting of the Malta Faculty of the Royal College of General Practitioners on the 9th September, speaking on the "Renaissance of learning in General Practice".

Under the auspices of the Catholic Institute a forum was held on the 26th November on "The problems created by the Socialisation of medicine". Besides the Rev. Mgr. Prof. C. Muscat and Dr. Ronald Conti LL.D., the honourable Dr. Daniel Micallef and the Honourable Dr. Vincent Tabone took part, under the chairmanship of Dr. Herbert Ganado LL.D.

Many of our colleagues abroad return for an occasional holiday in the old country. One of the rarest visitors was Ivan DeDomenico who qualified in 1952, went to the U.S.A. and to Canada and never came back until last summer. Dr. DeDomenico is now a urological surgeon and has been doing very good work in Montreal for several years.

Dr. Pio Mangion is back in London with a medical registrarship in the Charing Cross Group, being based at the West London Hospital and a new hospital at Fulham. Dr. A. Cilia is now at the Royal Marsden in Fulham Rd.

Back in Malta to stay is Dr. C.L. Cutajar. He was for two years at the Middlesex in the Institute of Nuclear Medicine and did research work in vascular surgery in the professorial unit of the department of surgical studies. For a time he worked with Sir Eric Riches, the eminnent urologist.

Dr. Paul Cassar and Dr. John Pace are now members of the editorial board of this periodical.

We chronicle with deep regret the death of Professor Victor Vassallo, O.B.E., which occurred suddenly on the 7th October last. Professor Vassallo had greatly advanced the teaching and practice of clinical psychiatry in Malta and was in many ways a leader of the profession. He did not spare himself in struggles for the betterment of conditions for his colleagues when he knew he must have been incurring health risks by so doing.

Mr. Elliot Brocklebank Dewberry, M.B.E., died aged 92, on the 22nd November at Epsom. Mr. Dewberry, as a sergeant in the R.A.M.C., had worked with the famous Mediterranean Fever Commission in 1905-07 and was almost certainly the last survivor from that fertile period. Mr. Dewberry had kept up his interest in health matters till the very end and had renewed his links with Malta through correspondence in his last years.

BOOK REVIEWS

An Outline of Oral Surgery, Part 1. — H.C. Killy, G.R. Seward and L.W. Kay, 1971. John Wright and Sons. Ltd. Pp. 181, £2.00.

This paperback is No. 10 of the "Dental Practitioner Handbook" series. It is written as a guide for postgraduate and senior undergraduate students and for general practitioners with a special interest in oral surgery. Part 1 is devoted mainly to the practical aspects of minor oral surgery and is of special interest to the dental practitioner who performs oral surgery in his own clinic or in hospital. The ten chapters deal with Instruments, Sterilisation, Scrubbing Up, Towelling Up, Intra-oral incisions and suturing, surgical removal of roots or impacted teeth, some common surgical procedures used in the preparation of the mouth for dentures, pyogenic infections of the soft tissues, inflammatory diseases of bone, antibacterial drugs, the removal of a tooth or root from the antrum and oro-antral fistulae, benign cysts and drugs in relation to oral surgery.

It is obvious that the text is the result of personal experience and not just a collection of articles published in specialist journals. It is clear and concise with a limited number of helpful illustrations. Senior dental students would read the

book with benefit but cannot rely on it as the sole textbook in Oral Surgery. Its direct and practical approach with the avoidance of space wasting buildup, essential in undergraduate textbooks, make this publication ideal for the dental practitioner. It would certainly improve his standard of oral diagnosis and surgery as well as help in indicating which patients are better referred to a consultant. An excellent publication which is unreservedly recommended; moreover it's relatively low cost should help it to find its rightful place on every dental surgeon's bookshelf.

G.E.C.

La Mort et Les Transplantations d'organs. C. Gerin, S. Merli, M. Barni and T. di Perri. Collana Monografica Zacchia. 100 pp. 3000 lire.

At the eighth congress of the International Academy of Forensic and Social Medicine, held at Opatija, in Jugoslavia in October 1970, Professors Cesare Gerin and Silvio Merli of the university of Rome, in connection with the theme of "Death and Organ Transplantations", read a report on the ascertainment of death. Professors Mauro Barni and Tullio di Priori, of the university of Siena, read a report on the deontological problems of transplantation. Both these papers, in French but provided with quite extensive summaries in English, have now been published.

The two reports are very well reasoned out. With the first one are also published *in extenso* thirteen documents which it quotes, such as the conclusions of the Commission appointed by the *Conseil National de l'ordre des medecins de France,* the report of the *ad hoc* Committee of the Harvard Medical School to examine the definition of brain death, etc. We note that Professors Gerin and Merli define death as "the total and definite stoppage of every cerebral activity whether directly or indirectly ascertained". They also point out that if the bioelectrical findings regarding the brain are going to be accepted as the sole criterion for recognising the death of the brain "the necessity appears evident to deepen and extend the relative researches".

This publication should be read by everyone who has to deal with transplantation problems, but is also of interest to those whose concern is purely academic.

E.A.

PUBLICATIONS LIST

The following are recent publications by graduates of our medical and dental surgery schools:

CAMILLERI, G. E. (with EASTOE, J.) 1971. The pattern of protein distribution in enamel during maturation. In "Tooth Enamel II" edited by Fearnehead and Stack (Wright: Bristol).

CUTAJAR, C. L. (with MARSTON, A) 1970. Muscle blood flow in patients with Intermittent Claudication. Brit. J. Surg., *57,* 390.

CUTAJAR, C. L. (with BROWN, N. G. and HARVEY, R. F.) 1970. Two computer methods for use with clearance studies where one exponential term is to be fitted. Proceedings of the international meeting on the use of computers in medicine. S. Kargel A.G. Basle.

CUTAJAR, C. L. (with BROWN, N. J. G. and MARSTON, A.) 1971. Muscle blood flow studies by the Technetium (Tc 99m) clearance technique in normal subjects and in patients with Intermittent Claudication. Brit. J. Surg., *58,* 532.

GRECH, P. (with HIGGINBOTTOM, E.) 1971. Inhalation bronchography. Radiography, *37,* 166-172.

GRECH, P. (with BEELEY, M.) 1971. Pyloric incompetence in chronic non-specific lung disease. Gut, *12,* 102-106.

MANGION, P. 1971. Disseminated tuberculosis complicated by Pancytopenia. Proc. Roy. Soc. Medicine, *64,* 1000.

PACE, J. LESLIE. 1970. The vascular pattern of human colonic mucosa. Rendic. R.R. Gastroenterol. *2,* 98.

PACE, J. LESLIE, 1970. Taenial muscle activity in the guinea-pig caecum. Abstracts of IX International Congress of Anatomists, Leningrad, 1970.

PACE, J. LESLIE. 1970. The human machine. Scientia, *33,* 123-132.

PACE, J. LESLIE. 1971. The age of appearance of the haustra of the human colon. J. Anatomy, *109 (i)*, 75.

PACE J. LESLIE. 1971. The vascular pattern of human gastric mucosa. Rendic. R. R. Gastroenterol, 3, 9.

PACE, J. LESLIE. 1971. The history of the School of Anatomy in Malta. Published for Open Day Exhibition at the Royal University of Malta. 7-8 March 1971.

VASSALLO, L. 1971. An Outbreak of lead poisoning of bread in Malta. Interesting association with British Naval history. J. Royal Naval Medical Service, 1-4.

VELLA, E. E. 1971. On vaccines and vaccination. Basic concepts and recent developments. J. Roy. Army Med. Corps, *117*, 123-129.

NOTICE

This periodical is published biannually in June and in December. Contributions for the June issue are to reach the Editor at the Bacteriology Laboratory, St. Luke's Hospital, Malta, by the 1st April. They must be typewritten, with double spacing. References should be given by the author's name and by the year of publication. Papers, which are accepted on the understanding that they have not been published elsewhere, are to consist of reports of original work or studies or case histories.

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