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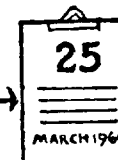
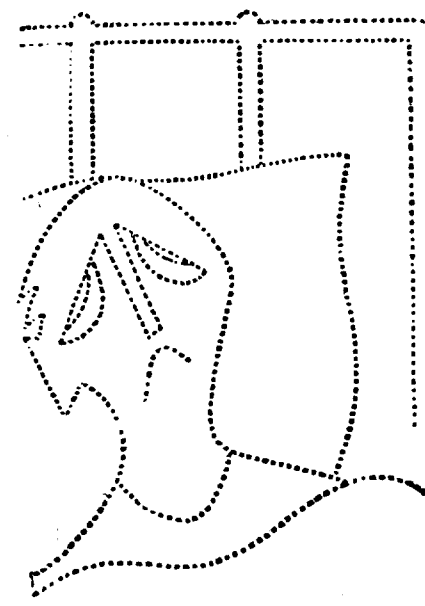
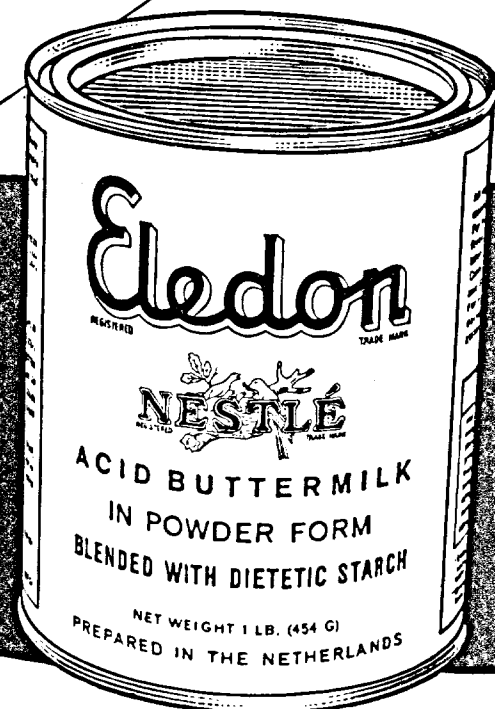
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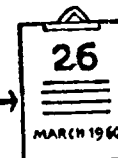


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SURGICAL & MEDICAL NEWS

OCTOBER 1961

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CURRENT TRENDS IN MEDICAL RESEARCH

NO certain reward stimulates the young physician to engage in original work. His cue is faithful routine. In consequence his preliminary scientific training goes largely to waste". Giving evidence before the Haldane Commission on University Education in London in 1913 this is what Abraham Flexner had to say. If this is true of England how much more true is it of conditions in our own country. Let alone the reward of engaging in original work being uncertain, anyone who does that puts himself and his future in peril. Originality and independence immediately irritate those at the top; and the tactful medical man attempts to sail along calmly doing just enough to follow the routine and yet not too much to provoke jealousies or antagonism. Indeed conditions are such that anyone showing any originality is liable to be transferred out to some other branch or other place where he has to start afresh. This aspect of our set up has been commented upon unfavourably by more than one observer.

Writing on conditions of work in the new India, Rewell (1958) states "Government schemes are by no means all helpful to progress. Not only is the administration rigid but the Oriental genius for red tape and procrastination, especially over finance, has to be experienced to be believed. My own work was much curtailed by this. Most unfortunately the semi-military control of personnel has been retained, and even senior people are "posted" (with no warning and without being consulted) by the D. M. S. who rules the medical service of each individual State in the Indian Union. Promotion is entirely by seniority within a speciality; there is virtually no competition for appointments, and in a hospital all authority is in the hands of the senior member of the staff as superintendent. Because people are moved so often, the staff of a hospital becomes quite unstable in its composition. Even at the earliest stage, trainees are "selected" arbitrarily for the various courses or appointments that will lead to higher degrees. Unless one is chosen in this way, one has no chance of specializing within the hospital service. Except for those still belonging to missionaries all the free hospitals, including the teaching ones, and almost all the research institutes, are run by the State Governments. Even in the non-clinical departments of the medical schools, the appointments are made by the local D.M.S. and accepted by the University. The new postgraduate institutes are attached to universities, and the senior jobs in them rank in the academic hierarchy; but here again all appointments are made by the local D.M.S." (Rewell, R.E. (1958) Medicine in the New India, The Lancet, September 13: 574). Williams (1958) remarked "If a doctor is recruited who happens to have a special interest or qualification in a particular speciality he may not be given appropriate recognition, and may turn his attention to some subject offering better prospects. As there is no hope of building up a special department, there is no continuity of staff. Without continuity, research is restricted, records are poorly kept, follow-up is neglected and progress is impossible."

In 1914 The Faculty of Medicine of the University of London expressed the opinion that "...The University atmosphere would be best created in a medical school by the encouragement of those who possess the necessary qualifications to pursue research untrammelled by the necessity for earning their daily bread, and that this end could be obtained with the least disturbance of existing methods by the appointment in each medical school of one or more Professors of advanced medical subjects. These professors should devote considerable time to the organisation of research, and should give a certain amount of teaching of the academic type. The more technical aspects of the student's education would be left in the hands of the present clinicians, who should be encouraged and aided in their endeavours to advance the knowledge of the subject which they teach." From this idea there came into being the Professorial Units their main objects being according to Rosenheim (1959) the Care of patients, Research, Undergraduate teaching and the Training of postgraduate research workers. The main contribution that the whole-time unit makes to medical education is by research. Students are trained in scientific methods and criticism and how clinical problems can be scientifically investigated and new drugs accurately tested. Once research workers are trained they must have some security. Discussing the recruitment of research and the organization of research Sir Thomas Lewis stated "When a worker has proved his research ability, has chosen research as a career, and has been accepted for such, he should be given reasonable security in this career. That means he must be able to see before him the prospect of increasing facilities and responsibilities, provided by appointments until he reaches a level where his abilities find full scope and where his remuneration is adequate".

What a far cry this is to what is happening in our country. Originality is crushed and independence of views becomes synonymous with a challenge to authority and the result is swift. Anyone who shows any competence in a particular field is soon sent out to something else so that equilibrium may be maintained and the "Old order need not change yielding place to new" until the person at the top becomes decadent senescent or non-existent. Unless something drastic is done little can be achieved. That this problem is one which is of concern to the medical profession at large is shown by editorials such as "Obstacles to the progress of Medical Science in India" which have appeared in contemporary journals of late (J. Ind. Med. Association, February 1, 1961).

NEW DRUG FOUND EFFECTIVE AGAINST HIGH BLOOD PRESSURE

Successful testing of a new orally administered drug has shown in test studies that it is capable of controlling severe high blood pressure, a group of three American physicians reported in the Journal of American Medical Association.

The physicians say that the drug, guanethidine, represents a new approach to the treatment of high blood pressure. It differs radically from other drugs now being used for the condition, because it acts on the arteries and veins rather than on the brain and nervous system.

In their test study, the physicians observed 16 patients for periods of one to eight months. Guanethidine gave "good control in fourteen of the patients, with minimal side-effects and no toxic manifestation," they reported.



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UNPLANNED RADIO-WAVE DIATHERMY AT THE PLACE OF WORK

BY DR. FORREST E. RIEKE, M.D.

RECENT comment in Industrial Medicine and Surgery concerning a claim for alleged injury due to work near electric equipment stimulates presentation of the bizarre case of a carpenter whose injured hand was affected adversely by work in the immediate vicinity of electronically motivated high frequency glue-drying machinery.

Mr. G. F., a 58 year old white carpenter was struck by a flying wood block sustaining destructive lacerations of the left hand, index and middle fingers, and a shattering compound fracture of the index proximal phalanx. In repair two main fragments of the phalanx were maintained by a small dorsally placed stainless steel plate held by two stainless steel screws. Ten days after injury a plaster cast on hand and forearm was replaced by a padded, anterior aluminum splint of half-hard 2-S aluminum, extending from finger tips to upper forearm. Progress was excellent with rapid healing and no redness, heat or swelling; increasing finger, hand and arm motion was well tolerated, and sutures were removed in 12 days. No complications were seen and the patient asked permission to return to supervisory work 22 days after injury, a request we unhesitatingly granted.

Seven days later, at his next visit, the hand and finger were widely swelled but no temperature change or local heat was noted; All bandages were replaced, carefully avoiding constriction of fingers, hand and wrist. Ten days later swelling was still widespread and a broad felt pad was placed over the rear of the hand doubly to assure freedom from constriction by wrappings. Swelling continued to appear during the day and improve each night. About two weeks after its appearance the worrisome swelling disappeared as mysteriously as it had come. A few days later an innocent question by the patient opened the door on our mystery.

At his work place, varied wooden beams, trusses, arches and the like are laminated by gluing boards and planks together. Many of these shaped forms are rapidly dried by use of penetrating high frequency

radio waves directed through the glued beams and so pre-set that drying heat is generated deep within the beams. Interference with local radio broadcasting necessitated subsequent heavy wire screening of these machines; they "broadcast" at varied wave lengths in the region of 13,500,000 cycles/minute. Our patient's work required his presence near these electronic machines many times each day. He inquired why his hand seemed to become more painful when working in the vicinity of the glue drying machines?

In retrospect it was readily established that during the period of unexplained swelling he would work for 15 or 20 minutes in the glue drying area and then move to other duties. After several days he noticed what seemed to be a direct relationship of time spent at the glue dryers to gradual onset of internal aching and burning pain; applying "Koch's postulates" he demonstrated that "electronics" at work were painful to him, and when he remained away from the drying rooms pain did not recur. His pain and swelling disappeared at about the same time.

Further questioning of electronic engineers confirmed the presence of high concentration of vagrant radio waves in the immediate neighbourhood of the glue machines. Under some circumstances these have been known to illuminate a fluorescent lamp tube held in the hand of a workman close by the operating dryer. The engineers held no doubt that our patient had been receiving unplanned diathermy through juxtaposition of his small stainless steel plate and his large aluminum alloy splint, carried into rapidly oscillating fields of high frequency radio waves.

As healing of bone advanced and the aluminum splint was abandoned we had difficulty persuading Mr. F to return to the glue room area. He has now done so and the diathermy effect is gone.

COMMENT

There are many reasons for post-injury swelling none of which seemed present in this case. Although

we have not previously encountered the same phenomenon, its basis in fact seems well founded. Pain in the "heated" hand probably was more intense because of presence of traumatized and unhealed tissues. Healing was not expedited by the subject "diathermy," but with exception of the period of pain and swelling progress has been excellent and the end result quite satisfactory.

Those working with the described high frequency machines have received superficial burns from "arcing" when moist skin surfaces approach too close to the machine's electrodes. The "arc" can be interrupted by sudden withdrawal of the extremity. Burns have been variable but shallow and not in any way approaching severity of the usual electric current burn. One such case displayed ulnar nerve irritation from elbow to hand for about 30 days with full recovery; no other nerve lesions have been seen and burns have responded to local therapy in a few days.

TWO UNIQUE OPERATIONS ON HEART

Two unique operations to eliminate inborn cardiac deficiency have been carried out at the Institute of Thoracic Surgery in Moscow.

Natasha B, a fifteen-year-old girl, had an artificial septum inserted, made out of a synthetic material. The flap was stitched to the walls of the common auricle and it took the place of the normal septum absent in the girl's heart. By this operation the surgeons restored Natasha to health and life since the grave disruption of blood circulation threatened to kill her.

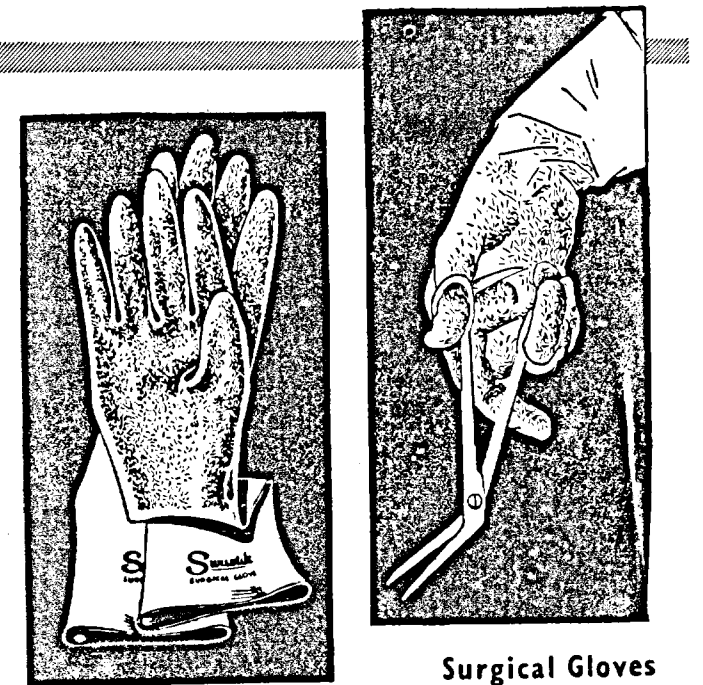
Four-year-old Tanya P. has been rid of a still graver illness by means of this operation. She had a congenital slit in the fold of her atrial valve and had a defect in the septum auricularum. She was in a very bad condition last year. A sharply dilated heart, pale face, quick breath and weakness—such was the picture of the illness.

The surgeon restored the valves flaps by suturing it together. Then the defect in the septum auricularum was removed also.

Now these two patients of the Institute of Thoracic Surgery are returning to health and will soon be discharged from hospital.

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MARFAN'S SYNDROME—A REVIEW OF 16 CASES

By

DR. J. M. PAHWA, M.S., D.O., F.I.C.S.,
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AND

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ECTOPIA lentis is not a very uncommon condition, and if one is on the look out, some of these cases will present a few features of Marfan's syndrome i. e. Archnodactyly, high arched palate, kyphoscoliosis and cardiac anomalies etc. particularly dissecting aneurysm of the aorta.

The idea which has prompted us in presenting this study of 16 cases particularly one family in 3 generations, is the association of ectopia lentis with other mesodermal defects and cardiac abnormalities but with no ectodermal defects. This has aroused a strong suspicion that this anomaly is mesodermal and not ectodermal as stressed by Dr. Idamann.

Marfan described this syndrome in 1896, but his original description contained no reference to ocular anomaly. He noted the skeletal abnormalities in a 5½ year old girl and called it dolichostenomelia and described the fingers and toes as spider-like. Achard (1902) laid emphasis on the marked attenuation of the extremities and their excessive length and because of the spider-like appearance of the hands called it arachnodactyly and this name has come into common use in later papers on this syndrome. Salle (1912) for the first time reported the association of ocular and cardiac anomalies. Incidentally this was the first case in which an autopsy was performed and Salle also called attention for the increase in the eosonophilic cells in the pituitary but the picture was not that of adenoma. It was for Ormond and Williams and Ormond (1924) to point out the frequent association of Ectopia lentis and other ocular abnormalities with arachnodactyly. Subsequent years brought over 350 cases particularly in French & German literature and Pappas, Manson & Denlon (1957) added 3 more. Generalised aneurysmal dilation of aorta with aortic nsufficiency was present in all three. Nacropsy showed a tear in the wall of the aorta without dissection in one

patient. The basic lesion histologically was cystic mucinous degeneration of the media.

The first case in American literature was reported by Piper & Irvin Jones in 1926, but they laid more stres on the frequent association of arachnodactyly with congenital malformation of the heart.

Young (1929) analysed the various ocular finding: in the cases of arachnodactyly reported so far and added four new cases of his own (one male and three females). Two of his cases were brother and sister in a family in which the mother showed similar feature: including dislocation of lenses and two cases showed features of amyotonia congenita.

Rados (1942) giving a thorough review of literature of the syndrome, summarized the clinical manifestations in 204 cases (101 males and 103 females) and 7 cases of his own. Deformity of ears was listed in 36 cases and hearing was defective in 6 cases. A combination of symptoms involving the eyes, heart and ear: was mentioned in 16 cases. A hereditary or familia tendency was mentioned positive in 58 cases and a questionable in 30 cases and was declared absent or was not mentioned in 113.

Bear et al (1943) reported aneurysms of the aorta and medionecrosia cystica of the aorta in their two cases. Etter & Glover (1943) described a case of this syndrome characterized by Arachnodactyly and complicated by dislocated lens and death from rupture of dissecting aneurysms of the aorta. Parker & Hare (1945) also reported aneurysmal dilatation of the aorta in this syndrome. Tobin et al (1947) were able to find description of only 12 autopsied cases of the syndrome in literature and they reported two autopsied cases of patients who had a dissecting aneurysm of the aorta. Reynold (1950) found 7 more cases in which autopsy was performed and added two cases of his own.

Moses (1951) reported two cases in whom autopsy was done. These cases presented arachnodactyly with aneurysmal dilation of the ascending aorta and multiple aortic tears without dissecting aneurysm or rupture. He suggested that aortic defects occur as often as better known congenital heart lesions e. g. patent foramen ovale. In the adult, aortic incompetence due to dilatation of the aortic ring and ascending aorta constitutes the usually associated cardio-vascular anomaly. One of these cases was a woman 52 year old and as pointed out by Mc.Musick (1955) was probably the oldest patient in literature succumbing to complications of Marfan's syndrome.

Hamwi (1951) reported a case aged 35 years and postulated the possibility of some defect in intermediary metabolism involving formation, transport or deposition of fat. It was demonstrated by nitrogen balance studies that the protoplasmic tissues are capable of responding to growth stimuli by storing nitrogen and phosphorus.

Thomas et al (1952) described 3 cases of Arachnodactyly complicated by aneurysm of the aorta. Two were dissecting aneurysms and one was a fusiform aneurysm.

Tulsi Das et al (1953) while reporting his own 8 cases of Marfan's syndrome in two families also reviewed the post-mortem changes in 28 cases as reported by Marvel & Gnovese (1951). Sorsby (1951) reported poor development of fat in 75% congenital dislocation of the lens in 60%, spinal anomalies in 58%, congenital heart disease, in 33%, malformations of the ear in 25% and poor musculature in 20% of cases.

Goyette & Palmer (1953) summarised the following cardiovascular lesions of 34 autopsied cases including one of their own:—

<i>Aortic lesions</i>	22
Dissecting aneurysms	12
Fusiform aneurysms	7
Dilated aortic ring	3
<i>Endocardial lesions</i>	21
Mitral	15
Aortic	10
Tri-cuspid	2
Not specified	2
Mural	2

<i>Combined aortic and endocardial lesions</i>	13
<i>Septal defects</i>	9
Patent foramen ovale	7
Interauricular	1
Patent ductus arteriosus	1
Dilated heart	1
Normal heart	1

Black & Landay (1955) reported 5 cases of this syndrome in a mother and four children. Only one of these cases showed cardio-vascular lesion in the form of doubtful mitral insufficiency. They found blue sclerae in all this youngsters.

Wilson (1957) studied a kinship upto three generation and discovered 9 individuals showing the manifestation of this syndrome which were conspicuous by the absence of eye involvement. He found the presence of pes cavus in 3 of these individuals. Watzke (1958) reported an interesting family with its inheritance in four generations. Van Buchem (1958) described 4 cases of cardiovascular disease associated with arachnodactyly in which aneurysms of ascending aorta, descending aorta, abdominal aorta and of the pulmonary artery were found. Some showed multiple aneurysms.

Daviel Kranitz (1959) while reporting 4 cases and their surgical treatment believed the condition to be caused by the disease of the connective tissues mainly a defective production or excessive destruction of chondroitin sulphate. The latter is an important ingredient of the ground substance of the connective tissues. Most of the lesions and features of Marfan's syndrome have also been reproduced in growing rats fed with diets containing 50% sweet-pea pods, a diet which interferes with the effective utilization of chondroitin sulphate (Ponseti and Shapard 1954 and Bean and Ponseti 1955).

The danger of trauma in these patients is indicated in two case reports. Dimond and others (1957) describe a 33 year old man who sustained blunt injuries to the chest leading to chest pain and severe aortic insufficiency. Patient died 4 months after an operation to repair the aortic insufficiency. Wedgewood (1958) described a man of 27 years who had an incomplete rupture of ascending aorta with secondary aneurysm formation. Recurrent episodes suggesting further tears occurred and death was due

to heart failure. There was some evidence that rupture was due to trauma.

CLINICAL FEATURES OF THE SYNDROME

Ocular defects

The lenses are subluxated in the form of ectopia lentis—usually upward and outward, occasionally up and in and rarely down and in. Iridodonesis, irregular anterior chamber, miosis with feeble response to atropin are commonly met with. 60% of the cases are myopic (Zentmayer 1933) while C. Clarke finds myopia in 90% of the cases and is of the opinion that it is not of progressive type. In individuals with pupils partly phakic and partly aphakic, monocular diplopia or even bilateral quadrantopia may be present. If the dislocated lens is beyond the pupillary area, the symptoms are of complete aphakia. Oblique illumination will reveal a bright reflex of the lens margin, a grey lens and the dark aphakic portion of the pupil, while the ophthalmoscopic examination will reveal the dark inferior rim of the lens and a double optic disc. Sometimes divergent or convergent strabismus or nystagmus of some type is seen. Under slit-lamp examinations thinned out zonular fibres may be seen. The anterior surface of the iris is often smooth and may not show any crypts:

Skeletal defects

In number of cases the skull is dolichocephalic. The limbs are exceedingly long and slender. There is not only a real increase in the length of the extremities as compared with those of normal children of identical age but a relative increase in comparison with the weight and there is disproportion between the length of the extremities and the height. The span between the tips of the middle fingers with arms extended often outstrips the height and represents one of the typical aberrations.

The metacarpal bones and the phalanges show well defined increase in length which in some cases is relatively greater in the terminal phalanges giving to the fingers the delicate spider like appearance described in Marfan's first case (Fig. 1). The feet also show an elongation owing to long and slender metatarsal bones and toes.

In the thoracic abnormalities the funnel-shaped

chest is quite common, but pigeon breast type with narrowness and flattening of the chest wall is often seen. Some degree of kyphosis and scoliosis is often found. Laxity of the joints and ligaments especially at the elbows, fingers and knees, forms a constant part of the picture.

General defects

There is poor development of muscular tissue. The subcutaneous tissue is markedly under-developed which accounts for the emaciated appearance and accentuates the already unnaturally long extremities. The face shows prematurely aged, melancholic or pained expression. In number of cases there is also high arched palate.

Cardio-Vascular defects

These are described by McKusick (1955) as follows :—

1. *Aorta.*
 - (i) Dilatation of aortic ring
 - (ii) Dilatation of ascending aorta
 - (iii) Dissecting aneurysm
 - (iv) Combination of 1, 2 & 3
 - (v) Coarctation
 - (vi) Patent ductus arteriosus
2. *Pulmonary artery*
 - (i) Dilatation
 - (ii) Dissecting aneurysm
 - (iii) Microscopic alteration of media.
3. *Septal defects*
 - (i) Atrial
 - (ii) Tetralogy of Fallot.
4. *Valvular abnormalities*
 - (i) Stretching and sacculation of the aortic cusps
 - (ii) Other gross and microscopic changes
 - (iii) Sub-acute bacterial endocarditis

5. *Dysrhythmias and conduction defects*

REVIEW OF 14 CASES

Age & Sex incidence

The youngest case examined was of 2½ years while the eldest, was of 70 years. 6 were females while 10 were males.

Age between	1—10	4 cases
	11—20	5 „
	21—30	3 „
	31—40	2 „
	41—50	1 case
	51—70	„ „
	Total	16 cases

5 cases of one family in 3 generations were examined and will be discussed separately.

Hereditary and familial incidence

In 4 sporadic cases no hereditary or family history was available while in other 12 cases distributed in four families definite hereditary was found. Though genealogical tree of one family in 3 generations is described separately but it is agreed and as is clear from our cases also that Marfan's syndrome follows the Mendelian law and that it has a dominant character. In literature its incidence in the siblings is 30%.

General examination

All of them were tall, slim frail with mostly oblong faces, the vertical diameter being longer. They had typical long and spider like fingers. In all of them the distance between the extended upper extremities (as measured from the tip of one middle finger to that of the opposite one) was more than the height. In two grown up individuals the difference was even 6".

Other features noticed were :—

1. Funnel shaped chest	2 cases
2. Pigeon shaped chest	2 cases
3. Delicocephalic head	1 case
4. Scoliosis	3 cases

5. Divergent squint	4 „
6. Decreased subcutaneous fat and underdeveloped musculature	13 „
7. Prominent ears	2 „
8. Inguinal hernia	1 case
9. Blue sclera	„ „
10. Mental retardation	Nil

Local examination

The eyes appeared normal except in 4 cases in whom divergent squint was obvious. In two cases of more than 40 years of age the lenses in both eyes were completely dislocated in the vitreous while one of these developed iritis and the other presented with secondary rise of tension. Similarly another young boy of the other family presented with spontaneous dislocation of lens in one eye. In four cases (5 eyes) referred above there were also extensive detachment of retina.

In almost all the cases the iris appeared lighter in colour and smoother with absence of crypts although radial streaks could be seen in some of them. Occasional deep clefts of darker colour concentric with the collarette were made out. In two cases signs of iritis with mild flare were met with. The fibres of zonule were seen in the form of degenerated thinned broken strands with occasional fine pigment over them and on the anterior lens surface. Iris was tremulous opposite the aphakic part. The pupils were easily dilated except in cases with spontaneously dislocated lenses. In six cases the lens margin could be seen in the undilated pupillary area. In one case where lens appeared to be normal, ectopia lentis was found only after dilation of the pupil. The dislocation was found to be up and outwards in 8 cases, up and inwards in 2 cases and outwards in one case while in 3 cases (4 eyes) it was completely dislocated. In four cases (5 eyes) complete retinal detachment was met with while in other cases the fundus was normal.

Refraction

Although high myopia is supposed to be common (Zentmayer & Clarke) but it was of moderate amount in most of our cases except in one case who was myopic by 20 Dioptres. In most of our cases, patients accepted aphakic correction. It is interesting to note that only in four sporadic cases there was marked myopia with astigmatism. In two cases no

improvement could be obtained with any lens. The correction achieved with the glasses was 6/24 in myopic cases and 6/12 or so in cases having aphakic correction.

Cardio-vascular examination

All the cases were examined in detail including screening and X-ray of chest. Electro-cardiogram was done only in 6 cases as this facility was not available in our earlier series of cases.

Cardiac enlargement	= 2 cases
Tall & elongated aorta	= 4 cases
Myocardial damage	= 1 case
Parasternal middiastolic murmur in 2nd. 3rd. intercostal spaces with widely split second heart sound	= 2 cases
Pre-systolic murmur in mitral area with mid-diastolic murmur	= 1 case
Aortic diastolic murmur	= 1 „
Lutembarcher's syndrome	= 1 „
Typical rheumatic heart condition	= nil
Normal heart	= 3 cases

Only three patients showed obvious cardiac symptoms i. e., breathlessness on exertion, occasional pain in the left side of the chest particularly over the precordium mostly on exertion but relieved by rest. Definite history of articular rheumatism was absent except in one case who gave history of fever with joint pains but he did not show any clinical evidence of rheumatic heart disease. One patient Shakila Khatoon aged 5 years (See case reports) showed evidence of atrial septal defect. While another patient Badri Prasad, aged 11 years showing all the features of Marfan's syndrome presented pulse of collapsing variety with aortic diastolic murmur down the left border of the sternum. Corrigan's and Durozier's signs were present. Screening showed enlargement of the left ventricle with prominence of the aorta and the descending limb appeared further to the left. There was exaggerated pulsation of the left ventricle.

E. C. G. showed moderate degree of left ventricular preponderance and hypertrophy.

Another patient, Kamlesh aged 8 years who also had Harrison's sulcus on both sides of the chest and right inguinal hernia. His muscles of the legs were weak and he could not walk without the help of specially built splinted shoes. He presented mid-diastolic murmur with widely split second heart sound in the pulmonary area and a pre-systolic murmur with loud 1st. heart sound and low pitched rumbling soft mid-diastolic murmur in the mitral area. There was also pre-systolic thrill in the mitral area. This patient presented a double lesion of the heart; mitral stenosis and atrial septal defect. There was no history of rheumatic fever. He was a typical case of Lutembarcher's syndrome.

E. C. G. was taken and indicated right ventricular hypertrophy, probably due to raised pulmonary vascular resistance and P wave was suggestive of mitral stenosis (Fig. 2).

X-ray showed small aorta, left atrium dilated, pulmonary venous congestion right ventricular enlargement and dilated pulmonary conus.

The main feature that strikes us in the cardio-vascular aspects of these cases is the abnormality of aorta and we agree with the view of Tulsi Das et al and as emphasised by Marvel and Genovese etc. These symptoms with prominence of aortic knuckle and signs of incompetence were marked in our elderly cases of more than 40 years of age. In younger cases one cannot completely conclude at this stage because only a further follow up or autopsy, if possible, will reveal as to how many of those will develop aortic signs and aneurysms of the aorta. So our conclusion in the study of cardio-vascular aspect is that the involvement of aorta is the most common significant finding in Marfan's syndrome though one of our cases showed atrial septal defect and the other of Lutembarcher's syndrome.

CASE REPORTS

Only one family in whom 5 affected cases in three generations were examined will be described over here. (Figs. 3 & 4).

1. *Nasima Khatoon*:—30 years Mohammedan female came to our hospital on 6th. October, 1958 for defec-

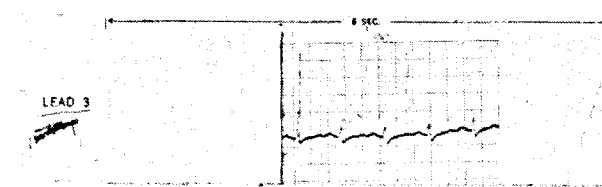
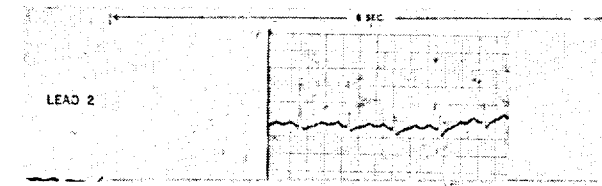
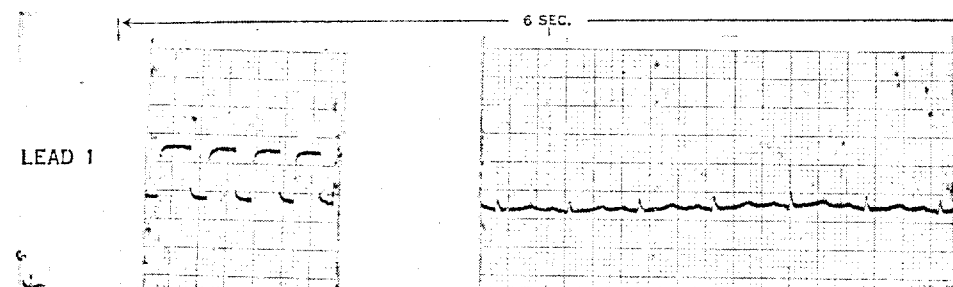


Nothing succeeds like success

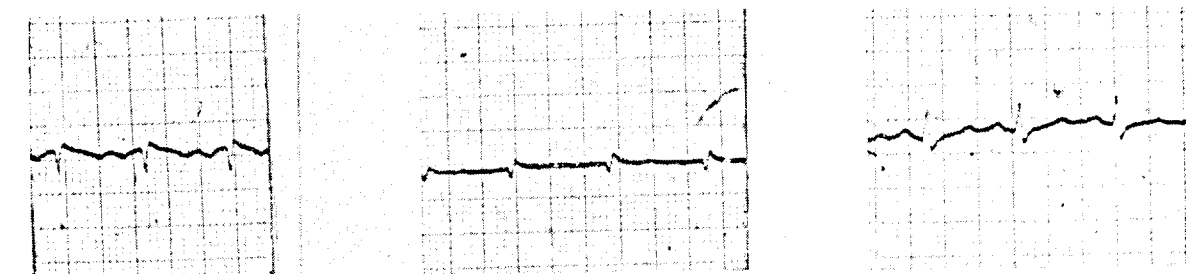
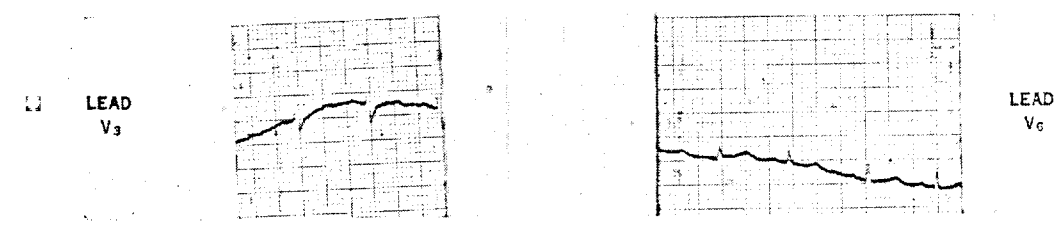
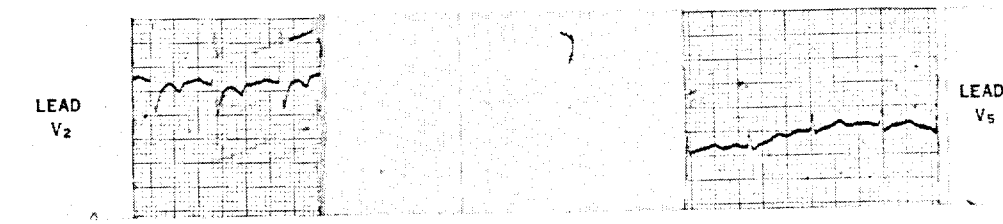
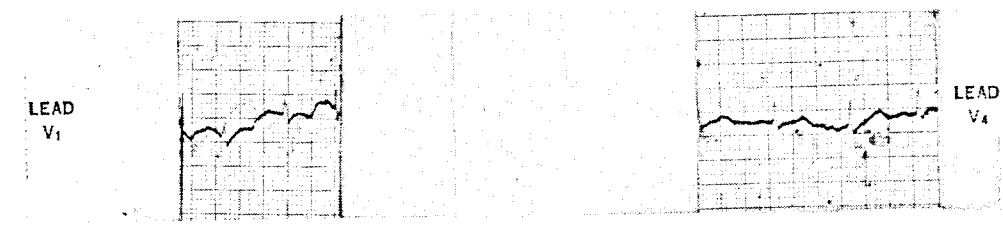
When life hangs in the balance under the doctor's scalpel, more than mere surgical skill is called for to make the operation a success, to save the precious human life. Much depends on the accurate administration of anaesthesia which may fail to produce the necessary effect unless the finest Intubation Instruments are used, especially the tubes, which must be smooth, resilient, free from blemish and with the thinnest possible wall to ensure maximum airway. The guiding principle in the designing of our range of Intubation Instruments is that they must be the unfailing ally of the doctor for the success of a surgical operation.

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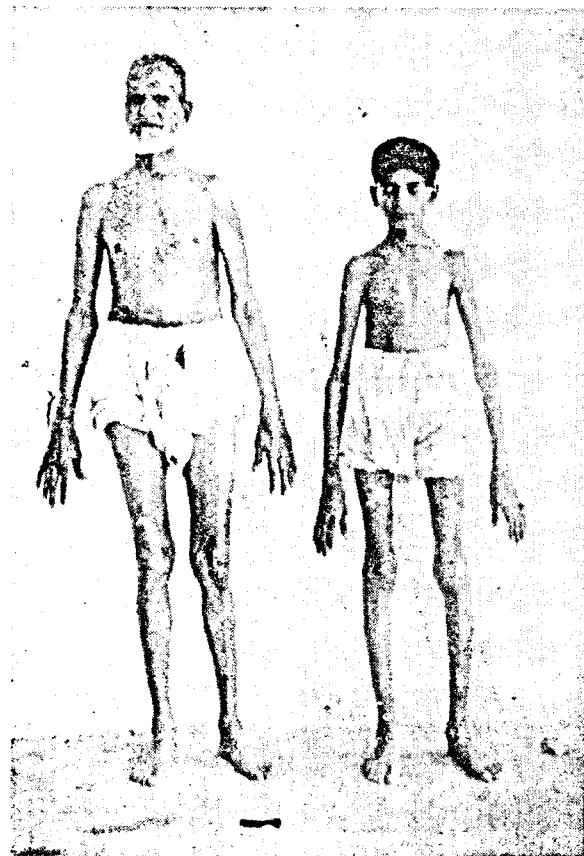
Rate 115/m., regular rhythm; P-wave conspicuous, widened measuring 0.12 sec. notched in VI, P-R interval 0.14 sec. Q-R-S. low voltage 0.04 sec. S-T normal, T-wave inverted in VI & 2 ratio of R VI/V6: 1.7 indicating right ventricular hypertrophy.



LEAD AVR LEAD AVL LEAD AVF

Fig. 2. E.C.G. of Kamlesh who had blue sclera also showing right ventricular hypertrophy and P. wave suggestive of mitral stenosis.

tive vision. On examination she was found to be very tall 5'—10½" with long tapering fingers. The measurement of the extended upper extremity was 6'—½" with weight 120 pounds. Other features like oblong face, poor development of musculature and subcutaneous



Figs. 3 & 3b. Family of Marfan's syndrome in 3 generations.

tissues, high arched palate and funnel shaped chest were present.

Iris was tremulous and pupils looked aphakic when undilated. Ectopia lentis up and out was visible only when the pupil was dilated. Iris was light coloured with absence of crypts.

Vision—Right eye plus 5.5D=6/12
Left eye „ 7.0D=6/12

Fundus: No abnormality.
X-ray chest=Tall aorta with prominent aortic knuckle and lungs normal.

E. C. G. was done on 26.2.1960 and was normal.

Family history:—Was definite. Hereditary was dominant. She had two sons and one daughter; of these two (one son and one daughter) showed this syndrome. Her father and one uncle was affected. She had 5 brothers and 4 sisters but only 3 sons and 2 daughters are living. Out of these 10 issues, 5 showed this syndrome.



Fig. 4. Family of Marfan's syndrome Nasima Khatoon with her daughter Shakila.

2. **Mr. Rashid Ali:**—70 years male, the father of Nasima Khatoon though had been admitted in our hospital sometimes back but now was re-examined on 10th, November, 1958. His right eye was aphakic due to spontaneous dislocation of lens with complete retinal detachment and low tension. His left eye was showing signs of repeated iridocyclitis with bound down-pupil. Lens was dislocated posteriorly. Vision was hardly perception of hand movement.

He was very tall 6'—2½" with long tapering fingers and poor musculature. Distance between extended upper extremity was 6'—4".

Heart:—Slightly enlarged, aortic knuckle prominent, localised systolic murmur in the 4th & 5th intercostal space. Patient gets out of breath on exertion. E.C.G. was not done.

3. **Nazir Ahmad:**—18 years male. One of the brothers of our patient Nazima Khatoon was examined on 10th, November, 1958 to be having oblong face and funnel-shaped chest. He was of tall stature 5'—8½" with long and spidery fingers, poor musculature and subcutaneous tissues etc. His right eye showed complete dislocation of lens with low tension and retinal detachment. The corneal showed dystrophic changes.

Left eye had partially dislocated lens (down and out). The anterior chamber was irregular and iris crypts were absent. Vision was finger counting only close by.

Heart:—Tall aorta with prominent aortic knuckle. Blood pressure and pulse were normal.

4. **Shakila Khatoon:**—5 years, daughter of our patient Nasima Khatoon examined on 26.2.1960. She had typical long tapering fingers, a long stature and her built was frail. She had ectopia lentis, (subluxation in the upper and outer quadrants). She was myopic by 7 Dioptres or so. Height appeared to be more than a girl of her age. Her mother gave history of recurrent bronchitis. Auscultation of the heart revealed soft localised mid-diastolic murmur in pulmonary area. The second heart sound was widely split suggesting atrial septal defect. E. C. G. showed right atrial hypertrophy indicated by changes in the P and T waves. There was no bundle branch block.

5. **Vijai-ud-din 2 years:**—Son of our patient Nasima Khatoon. He was poorly built but arachno-

dactyly was obvious. Lenses though dislocated but could be seen only when pupils were dilated with atropine. Fundus was normal and he did not appear to be myopic. Heart examination did not reveal any murmur or any other abnormality.

Pathogenesis:—A controversy still exists as to the genesis of Ectopia lentis and Marfan's syndrome. The prevalent view is that it is due to a defect in the development of the suspensory ligament so the dislocation is secondary to changes in the zonule of Zinn. It is an external manifestation of a hidden and unrevealed defect. The main discussion is whether the anomaly of the suspensory ligament itself is primary and, therefore, ectodermal or is a result of mesodermal defect which causes actual defect or delay in the development of the suspensory ligament. The occasional presence of pupillary membrane, notches in the lens, corneal ectopia, polycoria etc. with ectopia lentis makes one feel that there is some mesodermal abnormality which hinders the proper growth of the suspensory ligament from the ciliary body. As the anomaly is situated in the lower half i. e. in the region of the fetal cleft along which all mesodermal tissues gain access to the interior of the eye, it is possible that this mesodermal tissue persists longer at this place. It is a known and proven fact that persistence of this mesodermal tissue produces imbalance of growth factors not only in the suspensory ligament but also other parts of the eye. This, therefore, appears to be the primary factor. With weakness of the lower part of the suspensory ligament there may be an upward pull by the upper fibres of the ligament. This is understandable because of the stronger growth of the upper part of the zonule of Zinn.

As the disease is hereditary and germinal, other anomalies are expected and somehow all of them are traceable to defective development of the mesodermal tissues. These deformities as said before are spinal curvature, arachnodactyly, cardio-vascular lesions, light colour of iris, absence of crypts etc. Recently Kachele (1960) has noticed its association with "Striae distensae" elasticae on the skin. It is a very significant fact that no other ectodermal defect was noticed. On the other hand in primary ectodermal defects of the lens such as lamellar cataract, the association of anomalies of brain and enamel of teeth point to the association of all ectodermal lesions. At the same time working in the analogy of aniridia, considering it to be a primary ectodermal defect we often find the association of other ectodermal anomalies in the tissues growing

and differentiating at the same time i. e. at 70-80 mms. stage. When ectoderm of the iris fails to develop, fovea and lens show defective development. Therefore, association of small lens and underdeveloped fovea (nystagmus) point to the whole defect being



Fig. 6. Another family of Marfan's syndrome showing brother and sister.

ectodermal which means that the biochemical factor responsible for these ectodermal defect was not localised to one particular spot. Similarly in ectopia lentis, this constant association of all mesodermal defects, with it, point to its being primary mesodermal (Overgrowth of undue persistence). The persistence of abnormal mesodermal tissue in the irides of the many cases as revealed through smooth iris with absence of crypts etc. strongly supports our hypothesis that it is the undue persistence of mesodermal tissue which probably is responsible for ectopia lentis.

Ormond believes that there is some hormonal toxin which produces biochemical effects but he does not try to put the blame on a primary ectodermal or mesodermal anomaly.

Thrushfield compares—arachnodactyly to muscular dystrophy though muscular deficiency is not progressive in Marfan's syndrome.

Weve thinks that the mesoderm undergoes selective dystrophy involving the ectodermal tissue secondarily. Marchesani (1939) agrees with Weve believing that a disturbance in the mesodermal tissue (Tunica vascular lentis) leads to ectodermal anomaly in the zonular fibres, lens and iris. He also recommends that the term "Dystrophia mesodermali hypoplastica" be applied to Marfan's syndrome.

Professor Ida Mann, however, is of opinion that the defect in the suspensory ligament may be primary and biochemical. She states that the mesodermal defect may be co-existing but may not be the essential cause of the defect in the ectodermal tissue. She postulates that the defect of genes may operate on both the mesodermal and ectodermal tissues growing at the time and thinks the anomaly to be genophytic.

Vogt blames the ciliary body for defective development of the suspensory ligament. No defect could however, be seen in the ciliary body and if a defect is there why should it be always localised in the lower part and secondly, the defect may be in the blood vessels which are again mesodermal.

Mckusick (1955) thought it to be an abiotrophy involving the elastic tissue, and the involved tissues wear out prematurely under the usual stress and strain. The weakness may be present at birth though not recognisable by ordinary histologic technique. It expresses itself only later in the extra-uterine life, often very late. Ponsetti & Baird (1952) reported that kyphoscoliosis and dissecting aneurysm of the aorta could be produced in rats fed with lathyrus odoretus seeds. The production in rats of a somewhat analogous but acquired syndrome aroused great interest and Mckusick (1955) pointed out that, although there were reasons to believe that the basic defects were not identical in these 2 syndromes, experimental studies such as this might provide a lead on the inborn metabolic aberrations which formed the basis of the morphological abnormality of the aorta in Marfan's syndrome, and on the acquired aberration in the case of metabolic dissecting aneurysm such as may occur during pregnancy.

Duka Elder's view as he postulates some organic biochemical poison acting on embryonic mesoderm, lends support to our view.

Treatment:—The question of when to operate or whether to operate at all has found divided opinions. But as the disease is progressive and the lens may get more dislocated or even dislocated anteriorly or posteriorly either spontaneously or after slight trauma

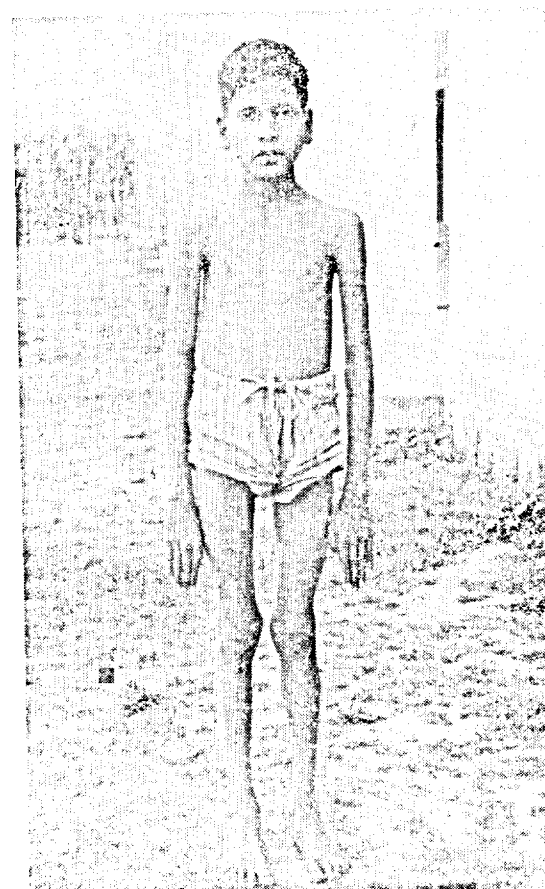


Fig. 7. Another isolated case of Marfan's syndrome

as that produced by sneezing, coughing or stooping etc. leading to iridocyclitis or secondary glaucoma, so early operative intervention is recommended. This is all the more indicated if the visual acuity obtained with the corrected lenses is low due to high astigmatic error or frequent change of glasses is necessary because of the refractive changes produced by shifting lens. Moreover, freely movable lens over a long period of time causes constant irritation of the anterior phase of the vitreous and possibly some degenerative changes in the choroid and the retina, thus predisposing to retinal detachment. We believe

that glaucoma or detachment following surgery in these cases is no greater than and probably not as great as the same complications occurring in un-operated cases. Four of our cases (5 eyes) who were not operated had extensive retinal detachment.

Multiple dissections are traumatising to the eye and even lead to Iridocyclitis and retinal detachment. An important cause for these complications is insufficient opening of the capsule (As the capsule is not tense so that after its rupture there is not much gaping) so that not enough cortex is exposed to the dissolving action of the aqueous, thus necessitating additional dissection and traction on the ciliary body and ciliary processes.

Method of extraction with the diathermy as recommended by Lacarrer & Jess has not been satisfactory with us. In this method the diathermy needle (Insulated except at its tip) is introduced into the lens after the usual cataract incision and a current of 20-30 ma is passed which coagulates the portion of the lens surrounding the diathermy needle. The area of coagulation formed turns whitish, when the current is interrupted and the lens is extracted. We do not find this method favourable because the hold by the diathermy needle after coagulation is not firm, so we recommend a technique which will avoid much unnecessary movement of the lens and at the same time do a generous capsulotomy.

A prophylactic diathermic barrage by means of Meyer Schwickerath photo-coagulation apparatus one month before the operation, if the lens is transparent or soon after the operation if the lens is opaque is recommended. The generous capsulotomy is done by two needle method—a Ziegler needle is passed from one side to spear the lens while liberal cut is made by another similar needle passed from the other side. In cutting the lens as much downward movement as possible is avoided to lessen the traction on the zonular fibres and thus indirectly on the ciliary body. The cutting is done towards the needle which is being used as a spear, then the second needle is used as a spear and the first used to cut with. The lessening of the movement of the lens in addition to reducing much of the traction on the ciliary body, also avoids much unnecessary stirring up of the vitreous, which in all probability is already diseased. This method has been used in four cases with good results.

Loop extraction can be undertaken in adults parti-

cularly with cataractous lenses but is to be condemned in children where loss of vitreous etc. may further predispose to retinal detachment.

Thus considering all the pros and cons of the problem, we disagree with those who advocate no surgery as long as these handicapped children are able to get around or until it passes on to a much less favourable stage. We agree with Daniel Kravitz in recommending early surgery because early intervention by the method recommended will not only permit more normal development of the child mentally, socially and educationally but will also prevent the onset of later complications. So this paper is a plea for early discussion in Marfan's syndrome particularly when the dislocated lens is causing visual difficulties.

Skeletal defects do not require much treatment. In one of our cases we had to get specially splinted shoes for him to give support to his weak muscles of the legs. Operative procedures have been tried for aortic incompetence with poor prognosis. Atrial septal defect and mitral stenosis may be corrected surgically.

SUMMARY AND CONCLUSION

1. Brief description of the literature on Marfan's syndrome with review of our 16 cases is made and a family of 5 cases of Marfan's syndrome in three generations with its geneological tree is described. One of our patients was of 70 years of age, probably the oldest so far described.
2. Pathogenesis of the Marfan's syndrome is discussed in brief and the mesodermal origin of ectopia lentis is strongly stressed as it is supported by the association of all mesodermal defects without the association of any ectodermal anomaly and the absence of crypts and under persistence of fibrous tissue in the iris.
3. Moderate myopia and not high was present in 4 sporadic cases. Only one case was 20 dioptré myopic. In most of the cases aphakic portion was larger than the phakic portion, thus they derived benefit from convex lenses.
4. Pupil dilated easily in all cases except in 2 cases showing signs of iridocyclitis. In four old cases (5 eyes) there was total detachment of retina.

5. Aortic manifestations were the main of all the cardio-vascular anomalies present in these cases, though one case had atrial septal defect and another Lutembarchar's syndrome.
6. Muscular weakness of the lower limbs was a prominent features in one patient. He also had inguinal hernia.
7. Early surgical intervention by discission with two Ziegler's needles is recommended. This will help in the normal development of the child socially and mentally. Glaucoma and detachment of retinal following surgery is no greater than occurring in un-operated cases.

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Survey Techniques in Psychiatric Epidemiology

(W. H. O. CORRESPONDENT)

AN Inter-Regional Conference on Techniques of Surveys on the Epidemiology of Mental Disorders was held in Naples from 6 to 15 December 1960. It formed part of the long-term programme in this field that was started by WHO in 1956.

The first step had been a study of epidemiological methodology as applicable to problems of mental health. After consultation with other experts, Professor D. D. Reid, of the London School of Hygiene and Tropical Medicine, drafted a technical memorandum on this topic, which was then discussed and amended at a meeting of experts held in London in September 1958, jointly sponsored by WHO, the Milbank Memorial Fund, the Medical Research Council of Great Britain, and the World Federation for Mental Health. The finished manuscript was subsequently published in the WHO *Public Health Papers* series.

In 1958-59 a systematic study of the present state of psychiatric classification was carried out. A large number of old and new classifications were analysed by Professor E. Stengel, of the University of Sheffield, and the resulting paper was also published by WHO. The topic was again discussed at a conference in New York in February 1959, organized by the American Psychopathological Association, at which WHO was represented by Professor Stengel and several WHO staff members.

In June 1959 the whole field of psychiatric epidemiology was discussed by a WHO Expert Committee on Mental Health, which stressed the urgency of surveying the prevalence and incidence of mental disorders and the need for specialized training in epidemiological techniques.

The Inter-Regional Conference in Naples was called in order to make leading psychiatrists, health statisticians and public health officers of Southern Europe and North Africa better acquainted with the possibilities and technical difficulties of epidemiological studies. The topics discussed were:

(a) Sample surveys of prevalence, with special reference to the census method and the relationship of general demographic factors to mental health conditions.

(b) Surveys based on hospital populations, with special consideration of the problems of retrospective and prospective cohort studies and the possibilities of using hospital populations for the assessment of treatment results.

(c) Studies on social influences on psychiatric pathology and their interaction with genetic factors, with special reference to the epidemiological problems of migrating populations and the validation of results by the study of appropriate control groups.

For each of these topics two discussion leaders had been appointed: for topic (a) Dr. E. Essen-Møller, Professor of Psychiatry, University of Lund, Sweden, and Dr K. Rawnsley, Member of the Scientific Staff, Medical Research Council of Great Britain; for topic (b) Miss E. M. Brooke, Statistician, General Register Office, United Kingdom, and Dr K. Jones, Lecturer in Social Administration, University of Manchester, United Kingdom; and for topic (c) Dr O. Odegaard, Professor of Psychiatry, University of Oslo, Norway, and Dr Y. Champion, Medecin des Hopitaux psychiatriques, Paris, France. All of these discussion leaders prepared short notes on the subjects for which they were responsible. In addition, Dr E. E. Krapf, Chief, Mental Health, WHO, and Professor T. Lin, of the National Taiwan University, Taipei, and Mrs C. C. Standley, WHO, prepared background papers of a more general character.

The paper by Dr Krapf was on "Epidemiology: its uses and its difficulties in the mental health field". He listed seven major uses of epidemiology in the study of non-communicable diseases, as recently formulated by Dr. J. N. Morris, of the Medical Research Council of Great Britain, and pointed out that they can be divided into two main groups, the first being of special value for operational purposes (e. g., studies of the distribution of health and

disease in a community or of the workings of the health services), the second being concerned with the etiological and physiopathological structure of disease. Referring to specific difficulties, he mentioned that in the causes and manifestations of many psychiatric diseases there are often individual factors that cannot be quantified. He also said that the number of factors involved in the etiology of these disorders often complicates their study, and that in psychiatry it is particularly difficult to identify a "case".

The subject of the paper by Professor Lin and Mrs. Standley was "Survey approaches to the epidemiology of mental disorders". Of these approaches, the one with which they were particularly concerned was the population morbidity survey, which aims at "measuring prevalence, or ideally incidence, of mental disorder through investigation of the whole or a sample of the population and at discovering associations with variables that may have a bearing on the causation of mental disorder". Although field studies covering the whole of a country are the ideal method of obtaining a reliable prevalence rate for

mental disorder, surveys of sample populations have proved the only practical method so far. The four techniques most commonly used for these surveys were discussed and exemplified. These are: (a) surveys of random samples of the total population of a country; (b) comprehensive household surveys within a defined district; (c) random sample surveys within a defined district; and (d) surveys of selected subgroups of a population.

At the opening session of the Conference, Dr Ernest Gruenberg, whose services were made available by the Milbank Memorial Fund, presented a paper on "Five problems in the epidemiology of mental disorder". Dealing with the first of these problems, the frequency of mental disorder, he reviewed studies on the subject using first-admission rates of a population, the prevalence of hospitalized cases at a given time, and fluctuations in the prevalence of long-stay cases. Dr. Gruenberg then examined the question whether foetal brain damage accounts for some cases of mental deficiency, basing his examination on studies of seasonal fluctuations in the risk of mental deficiency at birth and of



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relationships between complications of pregnancy and mental retardation, epilepsy, and various reading disabilities. The next problem considered was the part played by maternal deprivation in the development of mental disorder; several studies have shown this factor to be of importance but less direct in its influence than some authors have inferred. The fourth problem concerns a more specific disorder whose nature has recently become clearer as a result of laboratory studies with cell cultures and chromosomes: mongolism, now known to be due to a tripled chromosome (trisomy) at the No. 19 chromosome. Finally, Dr. Gruenberg referred to the problem of the circumstances surrounding group outbreaks of psychotic illness.

The main work of the Conference was done in group sessions. Three groups, each consisting of 6-10 participants, considered in turn the three topics selected for discussion.

MORBIDITY STUDIES BASED ON POPULATION SURVEYS

Professor Essen-Møller stressed the importance of carrying out population surveys on mental disorder outside the hospitals because of the possible bias of hospital statistics. He outlined methods of choosing the population sample for study, described the pitfalls to be avoided, and showed how case-finding should be carried out within the chosen sample (registers, informants, and household surveys). His paper included a description of the techniques used in a rural area near Lund.

Dr. Rawnsley referred to the work in psychiatric epidemiology now being carried out in South Wales. Among other points, he mentioned the wide use of selected groups for morbidity inquiries and the value of the long-term retrospective approach and the census method involving the psychiatric examination of a representative sample of the population. He warned, however, that the use of this method "to estimate psychiatric morbidity in populations must take account of current local attitudes to mental disorder".

In the group discussions on this topic, both extensive and intensive surveys were considered. The extensive survey covering a relatively large population is principally useful for securing information about

the severer forms of mental disorder (mainly the psychoses), is dependent largely on informants, questionnaires, and lay observers, presents on the whole simplified data, and is primarily useful for practical purposes. The intensive survey, on the other hand, concentrates on a relatively small population, can pay more attention to the less severe but more differentiated forms of mental disorder (behaviour disturbances and the neuroses), and relies more on direct examination and observation. It requires highly trained professional workers, and the results are in the main more accurate, though more complicated. A warning was given about the difficulty of drawing general conclusions from studies of isolated communities, owing to such complicating factors as intermarriage, uniformity of occupation, and possible high rates of migration.

Various approaches to population surveys were discussed, including the retrospective method based on the medical history of the persons interviewed and the prospective method in which a cross-section of the population is interviewed and seen again a few years later, new cases or relapses then being noted. Population samples should be clearly defined according to age, sex, occupation, and social status.

The attitude of the community to mental disorder is of some importance, and preliminary anthropological studies of the population may be required. The personal attitude of the interviewer is also important, since it tends to influence the results. Nevertheless, the interview, though less objective and standardized than the questionnaire, may be better received by the population and give better results. In particular, the skilled interviewer can observe and take into account the personal reactions of the subject to the questions asked.

It was suggested that survey staff might include medical students, although in many countries their training in psychiatry is inadequate. Their participation in such surveys would give them a better idea of the relative frequency of the different types of mental disorder, their social repercussions, and the importance of tracing and prevention. It was felt that psychiatric training at medical schools should be improved, and that everything should be done to make the general practitioner and the public more aware of mental health problems. Otherwise the data collected will tend to be inadequate and inaccurate.

MORBIDITY STUDIES BASED ON HOSPITAL DATA

Dr. Jones spoke of the value of hospital data for both local and national studies. Such studies might take the form of, for example, a patient census, an analysis of admissions and discharges or of waiting lists, or a follow up of discharged patients. Hospital records can be used for both retrospective and prospective studies, but adequate controls are essential. Results must be objectively and critically analysed.

Miss Brooke stressed the need for carefully devised and completed data sheets for case records. She listed factors other than prevalence and incidence of disease that may affect admission rates to mental hospitals: for example, shortage of hospital beds, the attitude of doctors or the general public, and the availability of community facilities. Nevertheless, hospital data are of value in the planning of accommodation, for epidemiological studies, and for research work on special topics.

In the group discussions, the general consensus was that, while hospital data cannot show the actual incidence or prevalence of mental disease, they contain important items of epidemiological interest—e.g., the patient's age, sex, and marital status, the diagnosis, the period of hospitalization, etc. Moreover, they are available, they are frequently standardized, and they are usually more comprehensive than data from private practitioners.

Hospital data are particularly valuable, it was considered, in the epidemiological study of the psychoses and, when well compiled, can be very useful in assessing general trends in the mental health of a country as a whole. They are also useful in establishing the need for psychiatric care and in measuring the results of treatment. However, epidemiological studies based on hospital records should, where possible, be complemented by "research in depth" conducted through personal interviews.

It was agreed that the diagnosis on discharge is usually more important for epidemiological studies of mental disorder than the diagnosis on admission. It was suggested that both be included in hospital records, and that the final diagnosis cover the etiology, symptoms, and personality structure.

Admission and discharge rates in themselves tell little, and are influenced by many factors, such as the desire of the hospital administration to show a rapid turnover, the manner of recording patients on leave, and the unwillingness of some physicians to certify voluntary patients. It is important to know, for each admission, whether the patient is entering hospital for the first time or not, both for general morbidity statistics—which might otherwise be falsified—and for the patient's general history.

There was general agreement on the need for national centres where hospital data for whole countries could be collected and processed.

APPLICATION OF EPIDEMIOLOGICAL METHODS TO ETIOLOGICAL PROBLEMS

Dr. Champion spoke of the place of migration studies in epidemiological research in the field of social psychiatry. Morbidity rates for mental disorders have been found to be higher among migrants than among settled populations. These rates have been studied differentially by age, sex, matrimonial status, economic level, etc. Trends in incidence have also been examined according to time of migration, ethnic and national group, and characteristics of the environment of immigration. Such studies are extremely complicated because of the large number of variables to be taken into account, but should prove valuable in investigating environmental factors in the etiology of psychiatric disorders.

Professor Odegaard referred to the highly complex pattern of inheritance of mental functions and their intimate interplay with genetic factors. Studies on monozygotic twins have thrown light on the genetic element in the etiology of some mental disorders. Certain etiological mechanisms have been elucidated through epidemiological studies, e.g., the effects of social and economic status, marital status, rural versus urban residence, social mobility, race and culture. Hospital statistics may be of use in these studies, particularly where—as in Norway and New York State—a central registration system makes it possible to follow each patient through successive hospital stays. Intensive studies of smaller population groups are also needed in psychiatric epidemiology. Valuable contributions in this field can be made by public health officers and general practitioners.

During the discussions on this topic, comparative studies of mental disorder among migrant and settled populations and single and married persons were reviewed. In nearly all these studies higher morbidity rates have been found not only among the migrants but also among single persons. The results may be interpreted as pointing either to a process of selection or to the beneficial effects of a relatively stable and secure environment.

The effects of migration on mental health were discussed at length. It was pointed out that morbidity rates are similar among the upper economic classes who emigrate of their own free will and those other classes who are compelled by economic circumstances to emigrate. On the other hand, a high morbidity occurs among displaced persons. A good opportunity for study in this field is provided by the migration of Nubians from land that is to be flooded under the Aswan Dam project. These people are accustomed to voluntary migration to Egypt for work, and their involuntary migration will create a situation of particular interest to the epidemiologist.

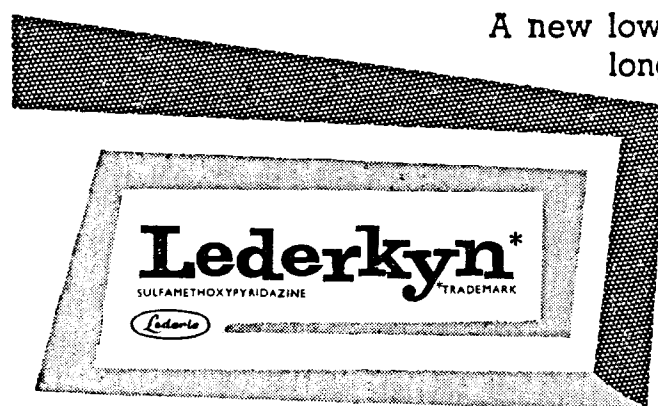
One group discussed mental disorders as a reflection of the conflict between the patient and his environment—of “nature” versus “nurture”. Epidemiological methods considered useful for research on this subject include: comparisons between groups of different social status; investigations based on marital status; comparisons between urban and rural populations; studies of social mobility factors.

The epidemiology of suicide and attempted suicide was suggested as a useful subject for study, though the ethical and religious considerations involved would tend to affect the accuracy of the results.

* * * * * *

The reports of the three discussion groups were presented at the concluding plenary sessions of the Conference. The participants then made individual assessments of the possibilities of epidemiological surveys of mental health matters in their respective countries, and of the help that would be needed in carrying them out.

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which necessitated the use of big specula and yet the hymen did not rupture" and in the same book there is an illustration of a traumatic recto-vaginal fistula resulting from the rough attempts by a husband to form an opening into the vagina of a newly married child ten years of age who had vaginal atresia. The hole was used for coitus for ten years of marriage life and the rectum prolapsed through it into the vagina.

Neonatal vaginal bleeding (genital crisis) is not serious and is a transient phenomenon. The most common type of precocious puberty is constitutional or idiopathic. Less than 10 per cent of all types of sexual precocity are associated with functioning ovarian tumours. In the absence of a palpable adnexal mass laparotomy is unwarranted.

Delayed menarche, primary dysmenorrhœa and dysfunctional uterine bleeding are special problems of the adolescent period which require gynecological consultation.

Ovarian neoplasms is uncommon during childhood but it should be considered in the differential diagnosis of several conditions observed by the paediatrician in girls from infancy through adolescence. These conditions are: lower abdominal pain of acute, sub-acute or chronic nature; abdominal or pelvic masses; precocious puberty and vaginal bleeding. The treatment of ovarian neoplasms is surgical and one third of these tumours are malignant.

Tumours of the vagina and uterus in childhood are uncommon. Those neoplasms which occur are more often malignant than benign and any protruding vulval or vaginal swelling should invariably be examined histologically to exclude malignancy. Vaginal or urethral spotting of blood in a child, no matter how young, should be taken seriously and investigated thoroughly, and for this anaesthesia may be required. The treatment of choice for most malignant tumours of the genital tract of the female child is early, radical surgical excision.

Writing on paediatric surgery of congenital malformations, Potts remarked "With no language but a cry children are asking for better treatment of their ills and begging for more thoughtful attention". Modern advances in Gynecology has brought effective medical treatment and improved surgical procedures but the thoughtful attention must come primarily from paediatricians and this cannot take a better form than to

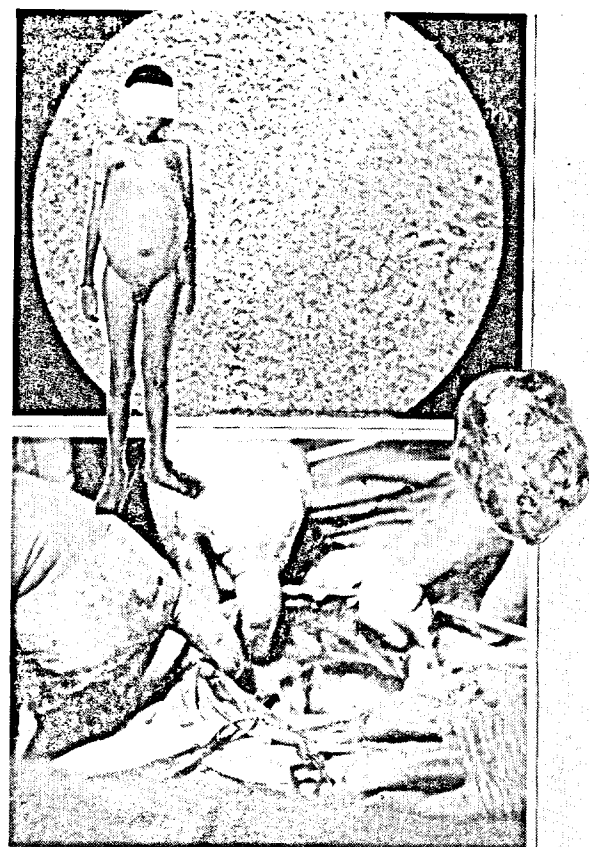


Fig. 6.

(Courtesy: The Govt. Women and Children's Hospital, Egmore, Madras.)

This 8 year old girl presented with precocious development of secondary sexual characteristics and discomfort due to abdominal distension. The parents had noticed the presence of an abdominal tumour prior to the onset of distension. Abdominal examination after paracentesis disclosed residual tumour mass arising from the pelvis which could be readily palpated. At laparotomy a solid tumour of the right ovary was found and this was removed. Histological study showed the tumour to be a granulosa cell tumour of the ovary.

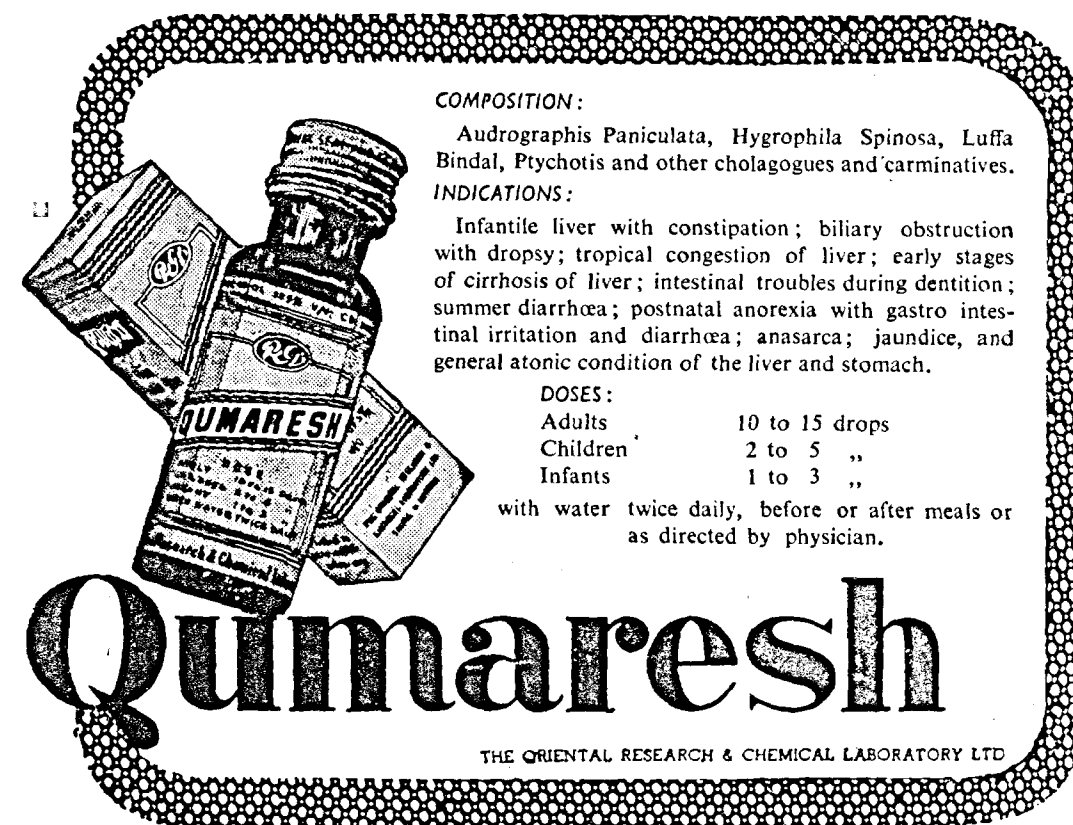
include inspection of the external genitalia of their young female patients and a rectal examination whenever the problem at hand seems a little obscure.

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THE HAZARDS OF FOOD ADDITIVES

By A MEDICAL CORRESPONDENT

ADULTERANTS, contaminants, and additives are words of opprobrium to the great majority of food consumers, and not without well-founded historical reason. As recently as 1959, 10,000 Moroccans were suddenly and mysteriously stricken with paralysis. This was not due, it was found, to some new disease or some new and severe manifestation of an old disease, but to the addition of mineral oil to the cooking oil they had bought. Adulteration of food in this way by unscrupulous merchants with no thought to its consequences to health is not new. It used to be common practice to add alum to bread to improve its whiteness, and it was by no means rare to add ferrous sulfate to beer to strengthen its taste, or salts of copper and lead to confectionery to give it bright colours, or red lead to cheese to increase its attractiveness to the eye. Additives disguised the deterioration of the food, made it look fresh and attractive when it was old and stale, or helped to pass it off as something other than what it was. Except in the most flagrant cases, too, it was relatively easy to escape detection; for the prevailing state of scientific knowledge up to the nineteenth century made it extremely difficult to convert suspicion of adulteration into certainty. Besides, it was customary to preserve food by the addition of salt, nitre, calcium sulfite, or other preservatives, and it was easy to argue that the substances added were intended in good faith to keep the food in good condition.

Nowadays, adulteration of food is punished in most countries under food and drugs acts intended to protect consumers from the dishonest practices of adulterators, adulterants usually being defined as ingredients added fraudulently to increase the bulk or weight or to conceal inferiority of quality. The fact that adulteration is an offence does not mean that it does not continue to be practised, it being probable that the extent to which it depends directly on the tightness of the control exercised by the authorities, which obviously varies widely from country to country. But, even if adulterants are no longer being added to food as much as they were, there is a never-ending list of new substances being added deliberately to food. With the increasing use of chemicals in food produc-

tion, too, the food is more and more frequently found to be contaminated with, for example, residues of pesticides. The ramifications of the food trade are world-wide, and this problem of substances added to or contaminating foodstuffs is nowadays not a local but a world problem. "The size of the problem", said an FAO/WHO Joint Conference on Food Additives that met in 1955, "makes it impossible for any one individual country to undertake all the investigations needed."

This same Conference adopted a definition of food additives that had been proposed by a Joint FAO/WHO Expert Committee on Nutrition. They are "non-nutritive substances which are added intentionally to food, generally in small quantities, to improve its appearance, flavour, texture, or storage properties."

THE JUSTIFICATION FOR FOOD ADDITIVES

What justification is there for adding any chemicals at all to food? A Joint FAO/WHO Expert Committee on Food Additives that met in 1956 examined the general principles governing the use of additives. They may justifiably be used—it held—to maintain the nutritional quality of a food, especially in countries where the supply of essential nutrients in the diet is marginal or deficient; thus antioxidants may be added to edible fats to preserve *beta*-carotene or provitamin A. They may be used to enhance keeping quality or stability, so reducing wastage of food; examples are antioxidants, antimicrobial agents, inert gases, curing agents for meats, spices. They may be used to increase the appeal of a food to the consumer (as for example, colouring, emulsifying, flavouring, stabilizing, thickening, bleaching and clarifying agents), thus preserving a constant colour in, say, butter and cheese—whose colour varies with the seasons—or in canned and pulped fruit, improving the texture of bakery products, imparting smoothness to ice cream, or giving uniform consistency to processed fats like margarine. They may be used in food processing, the present day large-scale manufacture of foods of constant composition and quality needing stabilizing, clarifying, oxidizing and sequestering

agents, acids, alkalis, buffer salts, and other processing materials.

Additives cannot—the Joint Committee held—justifiably be used to disguise faulty processing and handling techniques or to deceive the consumer. Strong flavouring substances should not, for example, be used to mask incipient putrefaction or conceal stale or inferior materials. Nor should they be used when they substantially reduce the nutritive value of the food, or when the desired effect can be obtained by good and economically feasible manufacturing practices.

Above all, additives should not be used when there is the slightest doubt about their safety. This means more than that the additives themselves should be safe. It means also that it must be shown that the additives do not produce substances in the food that are harmful. This they might do either when they are added to the food or afterwards, during processing, storage or preparation in the home. Or they might interact with each other to produce toxic substances, or do harm to

essential nutrients in the food. Safety also includes consideration of the people who are going to consume the food, some of whom may, because of their physiological state or organic disease, be specially sensitive to the additive concerned—those suffering, for example, from parasitic diseases, malnutrition, or certain degenerative conditions. An important point to be remembered at all times is that while easily identifiable foods are readily avoided, food additives may not be.

Food additives are obviously here to stay. In the highly developed countries, the consumer demands highly attractive foods, uniform quality, and a wide choice at all seasons. Many foods are imported from distant countries to meet this demand, and need processing on arrival. Consequently the food additives used are many and varied. Even in the less developed countries, where processed foods in variety are not commonly found, there is an increasing use of food additives. Many of these countries are in tropical or sub-tropical areas where the preservation of food has

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its own special difficulties and the means of controlling additives are limited or non-existent; the increase in their use is thus a matter of concern.

THE SAFETY OF FOOD ADDITIVES

Clearly additives that are harmful to health are to be condemned, but on what basis are additives adjudged harmful to health? There is no doubt about the addition of adulterants, of mineral oil to cooking oil as in the Morocco incident, or of red lead to cheese. But what of legitimate additives apparently not harmful to man taken in small quantities but about the long-term ingestion of which nothing is known? Some of these substances may be stored in the human body rather than broken down or excreted, and may after a certain threshold is reached begin to exert deleterious effects. Some may not be acutely but chronically toxic. Evidence of their safety is most often derived from study of the reactions of experimental animals to the administration of the food additives or of the processed food itself. A Joint FAO/WHO Expert Committee on Food Additives meeting in 1957 examined procedures for the testing of food additives to establish their safety for use. As additives (said the Joint Committee) may be taken for the greater part of a lifetime and produce reactions hitherto unsuspected, relatively much higher doses of the additives than human beings are likely to receive should be fed to the experimental animals for most or all of their lives. No single pattern of tests will do for all the many additives, hence the Committee could only make general recommendations, and even so it admitted that absolute proof of non-toxicity could not be established, since there may always be the occasional case of idiosyncrasy.

The best evidence—the Joint Committee admitted—for the safety of food additives is from human studies. Because there are difficulties in conducting these, reliance must be placed on other methods, among them animal experiments. The use of high dosage levels and the spread of the investigations over a number of different species make it reasonable to extrapolate the data to man. Even then, some margin of safety is desirable to allow for species differences in susceptibility, the numerical difference between the test animals and the human population exposed to the hazard, the greater variety of complicating disease processes in human beings, the difficulty of estimating human intake, and the possibility of synergistic action among the additives.

THE DANGER OF CANCER

The length of the list of chemical agents causing cancer is increasing. The threshold of action of some of these agents is low, summation of effects probably occurs, and the effects, unlike those of many toxic agent, are also probably irreversible. In man 92% of cancers occur in epithelial tissues, whereas these tissues take up only 17.5% of body weight. As the epithelial tissues are those most subjected to external influences, it is not surprising that polluted air, inhaled dust, tobacco smoke, and other tissues irritants have been closely examined for carcinogenic substances. So too have substances ingested, among them, in recent years, food additives. Another Joint FAO/WHO Expert Committee on Food Additives that met in 1960 devoted its session to an evaluation of their carcinogenic hazards.

The Joint Committee found information on the toxicity of potential carcinogenicity of many food additives to be lacking. Where there is information, the design, execution, and interpretation of some of the experiments reported are inadequate, and corroborative evidence is missing. The Joint Committee therefore set out in detail the principles to which such tests should conform, the factors that must be taken into account—such as identity and purity of the material under test, the kind and number of the animals to be employed, the duration of the experiments, the diet to be given to the animals, periodic and post-mortem examinations, the dosage range in oral tests, control groups—and the criteria on which the interpretation of the results must be founded.

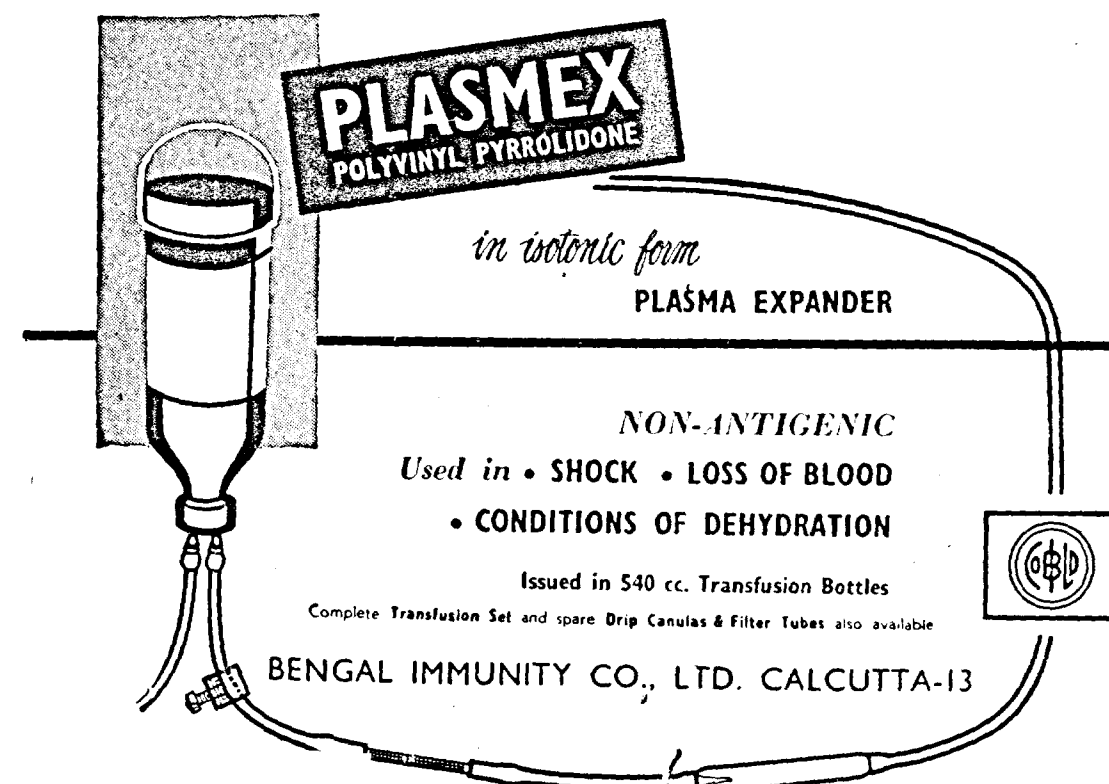
In principle, the Committee agreed, experimental studies cannot at present provide an absolute safe level for carcinogens in human food. Research and development in pharmacology and therapeutics are largely dependent upon the extrapolation of animal experimental studies to man. But it is safer to apply to man the results obtained from the administration of a pharmacologically active agent that rapidly produces a measurable reversible effects than those involving a process such as carcinogenesis which, as far as is known, is irreversible and may take many years to become apparent. Furthermore, the pharmacologically active agent is normally administered intermittently and is subject to some measure of control, so that unexpected deleterious effects are likely to be detected. A carcinogenic agent may be taken daily throughout a lifetime, which little likelihood that the relation between it and

a cancer occurring long afterwards will be recognized. It is possible, since it has been shown that there is a relationship between dose and response in carcinogens, that dose levels exist that would not induce cancer (though carcinogenesis is such a complex phenomenon that even this cannot be taken for granted). Prudence, however, precludes the establishment of a safe dose at the present time.

If a safe dose of an additive cannot be laid down and experimental studies in animals show that it may be carcinogenic, what then should be done? No easy answer to this question can be given. Some of these additives or contaminants play an important part in the production of food or in the preservation of the community's health. DDT, for example, is widely used for spraying in malaria control campaigns and against many insect pests. As a method of controlling insects it is invaluable, and it has raised health standards in many parts of the world, but it is a food contaminant and has been shown to be a weak carcinogen in rats. The decision whether to use a carcinogen as a food additive or to prevent it from being a contaminant must therefore rest upon an assessment of the risks and the benefits it brings to the community and the individual consumer. There are various possible courses of action. A carcinogenic agent can be excluded from

the list of food additives permitted. If it occurs in the general environment and contaminates food, tolerance levels can be fixed. If it is a secondary contaminant, specifications can be laid down that will ensure that it is kept to the lowest practicable level. If it is a pesticide, it may be banned on food crops, its use may be controlled, or the residue may be reduced to the level at which it is no longer detectable by a sufficiently sensitive method.

It is no easy task to make sure that food additives are free from harm. The first step is to disseminate information as widely as possible. In accordance with a recommendation of the Joint FAO/WHO Conference on Food Additives that met in 1955, FAO began in 1956 to issue a monthly bulletin entitled *Current Food Additives Legislation*, which presents abstracts of proposed new legislation and amendments to existing legislation. WHO and FAO have also begun the preparation of data sheets for a number of food additives. One on food colours has been completed. Others on such subjects as anti-microbials, antioxidants, and emulsifiers are being drawn up. By such means as these, FAO and WHO hope to keep governments constantly aware of the hazards of food additives and of the advances made in keeping additives safe for human consumption.



Visual Aids made by VEB Carl Zeiss JENA at the II. Indian Industries Fair 1961

AT their stand in the pavilion of the German Democratic Republic at the II Indian Industries Fair to be held from the 14th of November 1961 until the 1st of January 1962 in New Delhi the world's largest manufacturers of optical precision instruments, VEB Carl Zeiss JENA, are going to exhibit amongst other products of their extensive programme also visual aids.

ZEISS Telescopic Spectacles are meant for amblyopic and highly myopic patients. Based on the Galilean principle their $\times 1.8$ magnifying optical systems are

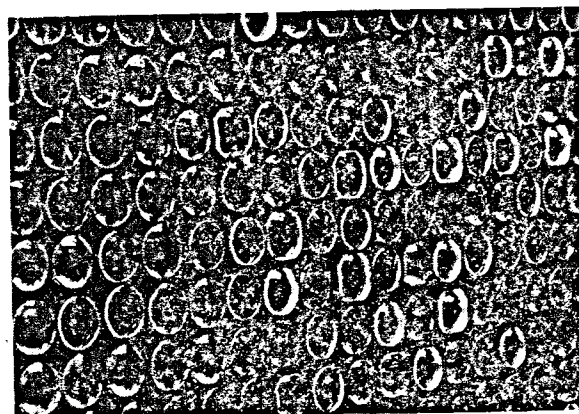


Fig. 1. Zeiss Spectacle Lenses.

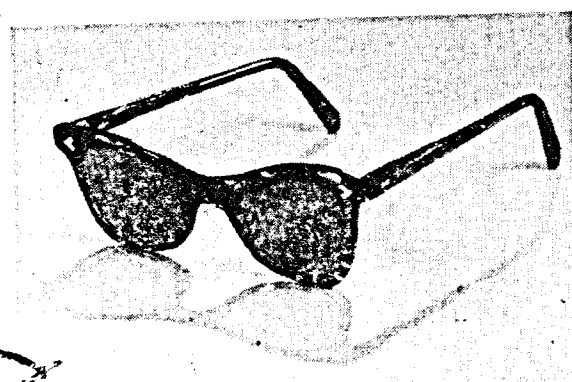


Fig. 2. Polarizing Spectacles.

practically free from astigmatic marginal aberrations. Particular attention has been paid to the elimination of any distortional and chromatic errors. By using

these spectacles many patients with a visual power of only 8/100 were enabled to resume their vocational pursuits. Effectively modernized, the new model of the Telescopic Spectacles with a Zylonite frame is of a neat and becoming form.

Magnifier Spectacles are very useful for medical examinations and minor operations, as well as for fine-mechanics, botanists, zoologists and for delicate work of every description. With as long a viewing distance as 200 mm. the $\times 2$ magnifying systems are correspondingly convergent. The spectacles afford a relatively large visual field of approx. 50 mm diameter.

Subjective determinations of the refracting power are

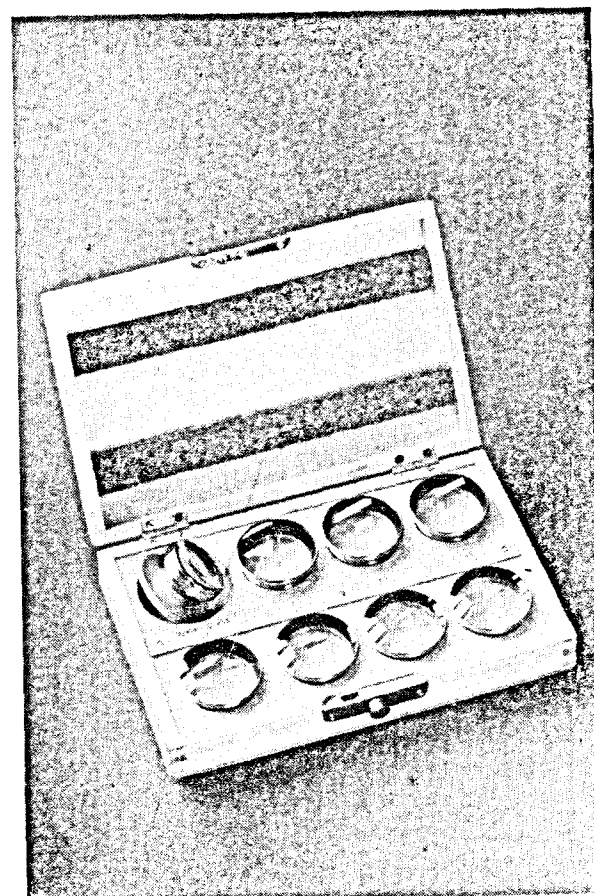


Fig. 3. Telescopic Spectacle Trial Case.

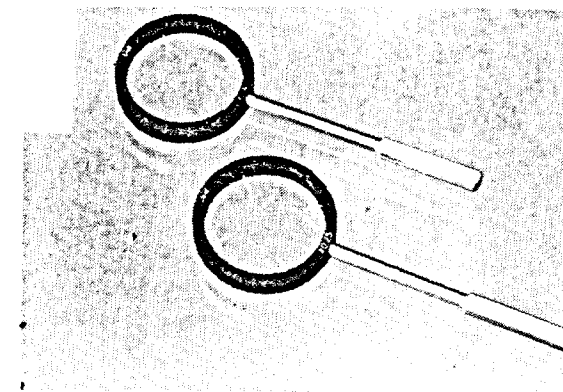


Fig. 4. Crossed Cylinders.

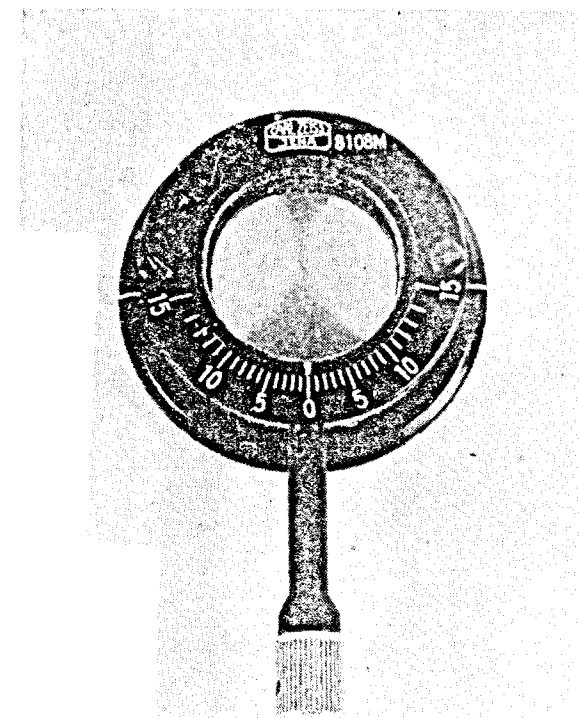


Fig. 5. Double Prism.

done with the aid of the Spectacle Lens Trial Set. All ophthalmic lenses contained therein now have an effective diameter of 20 mm. By virtue of the transparent broader rims of the plastic mounts the eyes can be tested under normal pupillary conditions. A metal ring inserted in the rim renders the mount durable in permanent use and, at the same time, permits of rapidly interchanging the trial lenses.

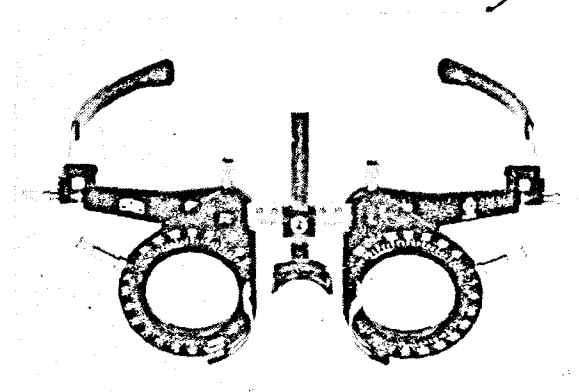


Fig. 6. Trial Frame.

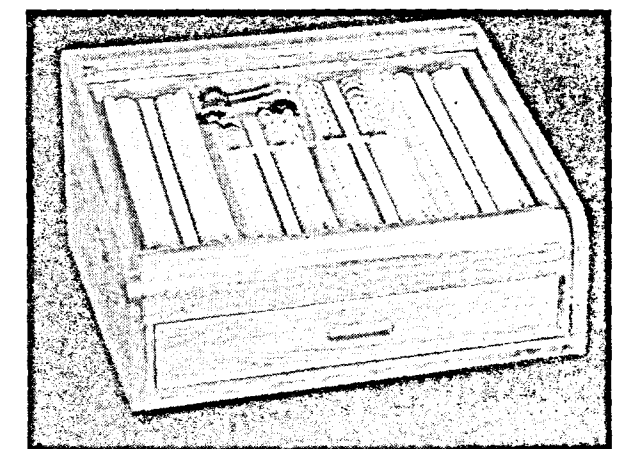


Fig. 7. Spectacle Lens Trial Set.

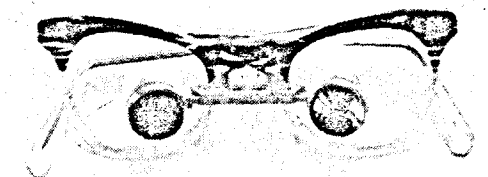


Fig. 8. Magnifier Spectacles.

Zeiss Trial Frames are perfect aids in modern eye-testing. Special tribute has been paid to keep their



Fig. 9. Telescopic Spectacles

weight as low as possible, to a simplified adjusting mechanism and easy fit.

As an attachment to the ZEISS Trial Frame the Double Prism is a valuable help for determining manifest squinting (strabismus) as well as latent muscular imbalance. Crossed Cylinders serve for neutralizing the astigmatism in subjective sight testing.

As an indispensable aid for determining the visual acuity of amblyopics the ZEISS Telescopic Spectacle Trial Case furthermore permits of finding out whether an improvement can be achieved by wearing Telescopic Spectacles.

The ZEISS Astigmeter is a variable crossed cylinder

Medical Instruments made by VEB Carl Zeiss JENA at the II. Indian Industries Fair 1961

In the pavilion of the German Democratic Republic at the II Indian Industries Fair to be held from the 14th of November 1961 until the 1st of January 1962 in New Delhi, VEB Carl Zeiss JENA is going to exhibit amongst other instruments of their extensive production programme also the following medical and ophthalmological instruments which will undoubtedly find the interest of the medical profession:

The Hand Ophthalmoscope is a new electro-luminous model satisfying exacting requirements. With the aid of Recoss-disks, corrective lenses ranging from +49 to -50 D may be brought into the observation aperture in steps of 1 D, the setting of the respective combination is illuminated and conveniently readable. Examinations in red-free light are ensured by the

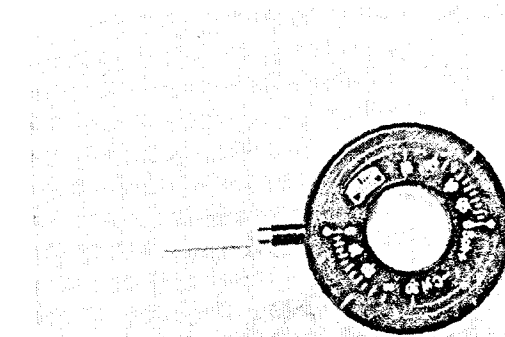


Fig. 10. Astigmeter.

used as an attachment to the Trial Frame. It consists of two cylinders of the same power but of different sign and facilitates finding the proper astigmatic lens and its axial position.

Inspecting industrial glassware and transparent plastics for strain is considerably facilitated by the new ZEISS Polarizing Spectacles. Two polarizing filters (analyzers) of modern shape are mounted in an imitation-shell frame.

In a show-case samples of the world-renown ZEISS single-vision and bifocal punctiform depicting spectacle lenses are exhibited, viz. the Punktal-, Uro-Punktal-, Tangal-, Duopal-, Cataract-, and Katratlenses.



Fig. 11. Luminous Hand Ophthalmoscope.

increased brightness. For indirect ophthalmoscopy the brightness is adjustable by means of a sliding lens

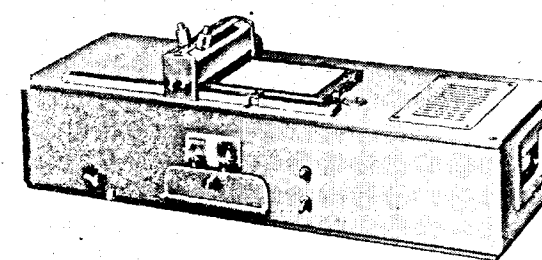


Fig. 12. Extinction Recorder with Integrator "ERI 10"

within 5 times its intensity and the luminous angular field from 16° to 6° . To avoid corneal reflexions the distance between the illumination-axis and the centre of the observation aperture has been made variable. All controlling elements can be manipulated by the hand holding the instrument.

Paper electrophoresis has developed into a generally applied routine clinical method for medico-biological examinations. The exhibited Separating Cell holding 16 or 8 strips for separation according to Grassmann and Hannig and the automatic Extinction Recorder with Integrator "ERI 10" form a complete outfit for paper electrophoresis. The advantage compared with the free electrophoresis according to Tiselius is based on the one hand on the small quantity of substance required, i. e. less than 1 mg per analysis, and on the other hand in the possibility of carrying out several electrophoretic analyses at the same time with a minimum of effort involved. One separating cell holds 8 strips of 300 mm length and 400 mm width each. Two cells may be connected to the rectifier which supplies a stabilized regulable direct current of maximum 200V with a maximum amperage of 30mA. The separating process may be carried out over night,

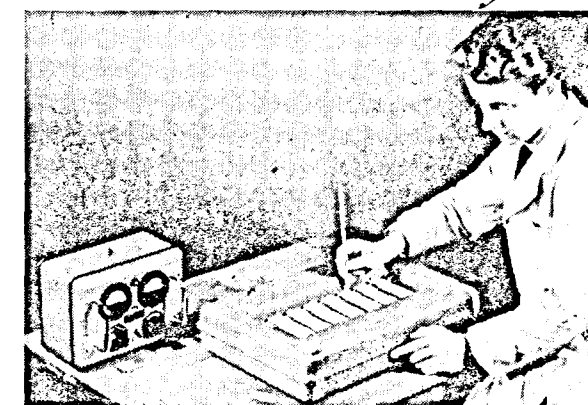


Fig. 13. Separating Cell for Paper Electrophoresis.

there is no need for supervision. The strips thus obtained are tinted and put into the Extinction Recorder with Integrator "ERI 10" for evaluation. In addition to the extinction curve which characterizes the distribution of substance over the length of the strip, the "ERI 10" simultaneously plots the relevant integral curve. Having extrapolated the extinction curve according to Gaussian distribution curves, the percent proportions of the components of the mixture can be rapidly determined with the aid of the integral curves. By virtue of the double-beam compensation method any fluctuations in the mains are rendered ineffective. A filter changing device affords selecting other spectral ranges for conventional dye-stuffs thus making the evaluation of chromatograms possible. Transparent strips may also be evaluated in transmitted light. The maximum height of the curve is 100 mm and 2 integration constants are at one's choice for plotting the integral curve. For pherograms with slanting base line an automatic elimination of the so-called trailing effect is provided for.

VEB Carl Zeiss JENA are represented in India by:
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51 COUNTRIES IMPORT SOVIET MEDICAL GOODS

A new All-Union "Medexport" (Medical Export) Association has been set up in Moscow.

Ekonomicheskaya Gazeta (Economic Gazette) reports that this Association has already concluded big contracts for the sale of medical goods. Tunisia, for instance, will receive from the Soviet Union 750,000 bottles of penicillin. Soviet medical instruments, especially such as apparatuses for electric sleeping,

suturing devices, instruments for the electric sharpening of surgical instruments will be shipped to the United States, the Federal Republic of Germany, France, the Republic of Cuba, Australia, Canada, Italy and other countries. Soviet medical goods are in great demand in the foreign market. At present medicines, various instruments and apparatuses are exported to 51 countries.

Hypotensive Drugs in Clinical Practice

BY DR. K. D. CHAUDHURI, M.D. (Med.), Ph.D (Pharm.)

Lecturer in Pharmacology, P. W. Medical College, Patna.

IN recent years a number of hypotensive agents have been introduced in the market and a campaign has been lodged to push their sales. Before handing over these potent hypotensive agents to the patients, who may use them for months together without perhaps, reporting to the physician, one should assess their values.

The blood pressure is maintained as a resultant of a series of factors like autonomic reflexes with afferents in the carotid and aortic bodies which affect the vasomotor centre, and the efferent fibres in vagus and sympathetic trunk innervating the heart, the blood vessels. The humoral mechanism, the adrenal medulla, the hormones, the higher centres, renal and other factors are involved in maintenance of blood pressure.

Hypotensive agents can be classified according to their main site of action as follows:—

1. Acting on cortex e.g. phenobarbitonum.
2. Subcortical area e.g. rauwolfia alkaloids.
3. Hypothalamus e.g. hydrogenated ergot alkaloids, veratrum alkaloids.
4. Blocking autonomic ganglia e.g. hexamethonium, mecamlamine, ansolysen etc.
5. Blocking sympathetic nerves e.g. Darenthin, ismelin etc.
6. Action on the smooth muscle of blood vessels e.g. xanthines, nitrites and nitrates.
7. Natriuretic agents: (reduce extracellular fluid and alter water and electrolyte pattern) e.g. thiazide derivatives.

SELECTION OF PATIENT FOR TREATMENT

The selection of the patient for treatment with a potent hypotensive agent should never be taken

lightly. The mere presence of a raised level of blood pressure is not necessarily harmful. In a large number of cases of benign hypertension reassurance with small sedative doses of a barbiturate (as little as luminal gr 1/6) or a tranquilizer, together with simple advice about the diet and general living habits will be enough. Majority is of opinion that symptomless hypertension should be treated only when the 'basal blood pressure' is high. Treatment should be instituted when the expected prognosis without treatment is unfavourable.

Hypotensive therapy is essential regardless of side effects of the drugs in the following groups of patients: (a) hypertensive heart failure or cardiac asthma of whatever retinal grade (b) when blood pressure level is above 240/120 mm of mercury (c) in patients with a blood pressure of 200/110 mm with evidence of one or more of the following:— (i) transient encephalopathy, (ii) fresh retinal hæmorrhage or early papilloedema and (iii) persistent albuminuria which is not due to kidney disease.

Lowering of blood pressure level is advisable with mild hypotensive agents in hypertensive patients with marked breathlessness on exertion, severe headache and giddiness, in younger age group where repeated blood pressure readings in home surroundings is above 160/110 mm, in middle age group with repeated readings above 180/110 mm, in middle aged male with B. P. 160/100 mm. The last group deserves special attention as the chance of coronary attack is more in middle aged male with moderately raised blood pressure.

Renal impairment in hypertensive is a problem. If the kidney damage is not severe an attempt should be made to lower the level of blood pressure. Unless this is done, further damage to the renal blood vessels will occur due to raised blood pressure. On the otherhand when there is severe renal failure lowering of blood pressure may reduce blood flow to the kidneys through the narrowed blood vessels and uræmia may set in.

There are dangers of lowering blood pressure

drastically. Arteriosclerosis is very common in hypertensive with no apparent signs. In such patient lowering of blood pressure, with a potent agent, may precipitate coronary or cerebral thrombosis. As such it is better to avoid the potent hypotensive agents above fiftyfive years of age.

SELECTION OF THE DRUG

In selecting a hypotensive drug the severity and urgency of the case potency, side reaction, toxicity, mode of administration, cumulation and development of resistance of the drug are to be considered. Degree of potentiation and reduction of toxicity are also factors when a combination therapy is decided upon.

In severe case with advanced retinal changes, hypertensive heart failure or cardiac asthma a potent agent like ganglion blocking drug should be employed.

When there is no urgency Rauwolfia alkaloid with or without a diuretic will probably be sufficient. The basal blood pressure will often decide the issue. A high basal blood pressure indicates the necessity of a potent drug.

The drugs can be grouped according to their potency:

1. Mild drugs with only moderate side reaction, employed for background therapy e.g. phenobarbitonum, chlorothiazide, rauwolfia alkaloids.
2. Potent agents with many undesirable side effects and toxicity, employed in selected severe cases.
 - (a) Autonomic blocking agents e.g. hexamethonium, mecamlamine, pempidine etc.
 - (b) Blocking sympathetic nervous system e.g. darenthin, guanethidine.

SOME INDIVIDUAL DRUGS

Rauwolfia:— The main alkaloid is reserpine. Its action is complex involving the role of serotonin centrally, depletion of noradrenaline both from peripheral and central sites and sedative action. Reserpin decreases activity of central connection of sympathetic nervous system in hypothalamus by some

means related to the release of serotonin from the nervous tissues.

Rauwolfia lowers the blood pressure and slows the pulse rate. Patient becomes less irritant, calm and reaction to stimuli dampened. Some of the effects of reserpine in hypertension is due to tranquilizing effects. Rauwolfia has another advantage in that it can moderate the side reactions of many potent hypotensive agents while potentiating the latter's hypotensive action. Rauwolfia has gained the place of the drug of choice for background therapy with a mild agent.

Side effects are not a major problem. Congestion of nasal mucosa induced by rauwolfia, could be relieved by an antihistaminic. Mental depression and lassitude may occur. Aggravation of peptic ulcer, biliary disease and bronchial asthma should be kept in mind. Nightmares is a signal of overdosage.

NATRIURETIC AGENTS

Many new addition have been made in this group including chlorothiazide, flumethiazide, spirinolactone etc.

In hypertension there is deviation in electrolyte and water balance. A correction of these deviation by natriuretic agents offers beneficial results. They decrease plasma, extracellular fluid volume, exchangeable body sodium and cardiac output. They are mild hypotensive agents but can increase responsiveness to other hypotensive agents.

Side effect are not a major problem. They include nausea, epigastric pain, dysurea, lethargy. Prolonged therapy however, can cause serious potassium depletion. As such it is always better to supplement potassium. In patient under digitalis loss of potassium may induce digitalis intoxication. On long continued use they can depress glomerular filtration rate leading to a rise in blood urea.

The thiazide group is at present, very commonly used and has done away with the problem of sodium restriction. Its main use is as an adjuvant to other hypotensive agents.

VERATRUM

Veratrum alkaloids reduce the blood pressure by

stimulating the normal afferent reflex pathway from the baroreceptors in heart and great vessels. There is vasodilation and bradycardia. It is not used much these days as absorption is erratic, safety margin is narrow and the side effects are frequent.

HYDRALAZINE

This drug possesses both central and peripheral action. The action of hydralazine is unique in that it dilates the renal blood vessels while lowering blood pressure. It produces a cardiostimulatory effect which results in increased cardiac output and tachycardia. This is also responsible for palpitation and angina pectoris. Hydralazine can aggravate coronary infarction. It can produce "hydralazine-lupus" when used in high doses. Pancytopenia and psychosis have been reported.

The hypotensive effect of hydralazine can be enhanced with thiazide derivatives or rauwolfia. This combination also reduces incidence of side reactions with hydralazine. The problem of rapidly rising diastolic blood pressure can be tackled with a combination therapy of hydralazine and guanethidine or ganglion blocking agents. Combination therapy of hydralazine and a ganglion blocking agent may be utilized in hypertension with renal impairment. This combination avoids further depression of renal blood flow.

Though hydralazine is an effective drug it should not be used as a sole agent because a high dose is required to control the blood pressure which may cause serious toxicity.

BRETYLIUM TOSYLATE (DARENTHIN)

Darenthin selectively block peripheral sympathetic nervous system. Circulating adrenaline and nor-adrenaline are not inhibited. The main effect is fall of blood pressure on standing.

Drug resistance often occurs necessitating a high increase in dose which has a demoralizing effect on the patient. Moreover, absorption from gut is variable leading to large fluctuations in blood pressure. Excretion induces fall in blood pressure, similar to guanethidine, due to vasodilation in non-exercising areas. This is undesirable as it can produce syncope after brief exertion. Dizziness and weakness should be regarded as a signal for checking up of blood

pressure after light exercise. Other side effects include fatigue, nausea, nasal congestion, loose bowel, facial pain, bradycardia and failure of ejaculation. It should be avoided in severe renal disease, coronary and cerebral arteriosclerosis.

Simultaneous diuretic therapy potentiates darenthin but does not overcome the problem of drug resistance. Darenthin alone is disappointing for long term management of hypertension because of resistance and wide postural swings in blood pressure. Bretylium is interesting as it indicates that in near future we may have hypotensive agents without the side effects of a ganglion blocking agents.

GUANETHIDINE

It selectively inhibits sympathetic activity without impairing parasympathetic function. There is an initial sympathomimetic action followed by prolonged sympathetic paralysis. It lowers blood pressure by decreasing cardiac output (an advantage over the ganglion blocking agents) rather than by peripheral vasodilatation. The side effects like diarrhoea and orthostatic hypotension, are due to autonomic imbalance. It may cause fall in blood pressure after light exercise.

The drug is relatively a new introduction and a dogmatic opinion could be offered only after a couple of years of study. It is undesirable for urgent cases because of the extent of fall in blood pressure cannot be predicted.

GANGLION BLOCKING AGENTS

These drugs block transmission at autonomic ganglia. The sympathetic and parasympathetic are both blocked. There is no other significant action centrally or peripherally.

Numerous drugs have been synthesized in this group. The drugs belong mainly to two groups.

1. Quaternary ammonium compounds e.g. tetraethylammonium, pentamethonium, hexamethonium, pentolinium, etc.
2. Secondary and tertiary amines e.g. mecamlamine, pempidine.

There is very little to choose between the individual members. Oral absorption is not reliable. The effect of all the drugs are qualitatively similar. The difference is mainly in rapidity of onset and duration of action. Tetraethylammonium produces a rapid and transient fall in blood pressure while with hexamethonium it is rapid and prolonged. The effect is slower and more prolonged with pentolinium and chlorisodamine while it is more rapid and sustained with mecamlamine.

The dose of ganglion blocking agents is highly individual and has to be worked out by starting with a small initial dose and working up gradually the effective optimum dose. Patient should sleep propped up in bed with a backrest at 45°, as the fall in blood pressure is slight in lying position.

Mecamlamine:—Absorption from gut is reliable and is at present the ganglionic blocking agent of choice for prolonged therapy by oral route. Excretion is slow and there is accumulation as such it is dangerous to raise the dose very quickly. There is risk of paralysis of ileus. The problem of assessment of the control of blood pressure is less with mecamlamine because of its prolonged duration of action.

Pempidine:—it is orally completely absorbed but is of shorter duration of action (6 hours) and excreted more rapidly. Smooth control of blood pressure may be achieved. Reserpine or chlorothiazide can increase its action. Side effects are less troublesome than other ganglion blockers.

Ganglionic blocking agents are most potent hypotensive agents available for prolonged therapy. The side effects have limited their use. Moreover, supine blood pressure is little affected. Combinations with other drugs increase their potency.

This group of drugs are not used in symptomless hypertensive unless blood pressure reduction is urgently

needed. The rapid action make them suitable for hypertensive emergencies. They are perhaps drugs of choice in malignant hypertension, hypertensive retinopathy and heart failure. Problem arises when arteriosclerosis is present. A quick and drastic lowering of blood pressure may induce cardiac and coronary thrombosis. These agents are better avoided in elderly persons in whom arteriosclerosis is likely to be present.

Every year a number of hypotensive drugs are being added to our armamentarium but the ideal is still far off. Attention has been focussed on antiserotonin agents, monoamine oxidase and decarboxylase inhibitors. They may prove better drugs in future. With the agents available, we are not attacking the pathological physiology of hypertension. Hypotensive agents are non-specific like antipyretics in pneumonia. The action is on the end point. Moreover, in a large number of cases we may have to be satisfied with only a modest fall in blood pressure as an adequate fall is achieved only in association with undesirable toxic effects. The combination therapy is a single dosage form is also not happy. In these dosage forms the optimum amount of each individual drug has been taken for granted. These combinations do not take into consideration the individual variations and susceptibility of the patient to any particular member of the drugs combined in a single dosage form. When a combination therapy is decided upon it is better to give these drugs separately as the dose of the individual drugs can be controlled.

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U. K. APPRENTICES MAKE HOSPITAL EQUIPMENT FOR INDIA

The Commonwealth Technical Training Week in Britain has provided an Indian hospital with lifting apparatus for moving helpless patients. The apparatus was designed and built by apprentices from 22 iron and steel and engineering companies in Sheffield. The completed apparatus was handed over at the close of Sheffield's Commonwealth Technical Training Week by Mr. A. E. Thornton, chairman of the West Riding (Yorkshire) and North Derbyshire training committee of the British Iron & Steel Federation. It was received by Mr. N. M. Gupta, an official of the Indian High Commission in London, who said that the Ministry of Health in New Delhi would be asked to suggest a suitable hospital to receive the gift.

Health Legislation Advertising of Pharmaceutical Preparations

BY A SPECIAL MEDICAL CORRESPONDENT

THROUGHOUT the world the number of pharmaceutical specialities is rapidly increasing and there is a corresponding increase in pharmaceutical advertising. Many new media, such as television, have been pressed into service for this purpose. All this entails certain risks for the general public, who are exposed to the dangers of self-medication and who may be induced to apply persuasion to their doctors to prescribe. Public advertising may make exaggerated claims, excite unnecessary alarm, or falsely reassure and so delay needed treatment. "Technical advertising", i.e., advertising to the medical profession, has grown in some countries into a massive and intrusive pressure against which the doctor cannot always adequately defend himself.

Many of the larger pharmaceutical firms voluntarily adhere to high standards of advertising ethics through codes drawn up by their trade associations, sometimes in conjunction with the advertising authorities. But it is obvious that firm supporting legislation is essential if the public interests are to be properly protected. On a number of occasions international bodies have stressed this need. In 1959, the eleventh session of the WHO Regional Committee for the Americas recommended that the governments of member countries of the Pan American Health Organization should take steps to prohibit untruthful and misleading advertisements. More recently, the International Pharmaceutical Industry Group of the member countries of the European Economic Community expressed the

wish that advertising to the public should be subjected to control to prevent harm or misuse, especially when the public might be misled or induced to ignore timely medical advice. A number of countries are at present revising or planning regulations in this sphere. An analysis of existing legislation in 22 countries just published in the WHO *International Digest of Health Legislation* usefully complements an earlier review of the classification of pharmaceutical products.

Some idea of the size of the problem is apparent from the sheer number of the preparations concerned: 3500 for Sweden, over 25 000 in Canada, 40 000 or more in a few countries. It is not difficult for legislation to control the advertising of drugs in countries where they are few in number, but is not so easy in those where there are thousands of products on the market. Many of these substances depend for their sale not at all on intrinsic merits but almost entirely on the sheer volume of advertising; while safe and effective products of long standing, well-known by reputation, may require little boosting.

The object of legislation designed to control the composition of pharmaceuticals differs from that of legislation aimed at governing the way that are advertised. It is not enough to ensure that a product is innocuous and effective if it is promoted in such a way as to create alarm and despondency or to encourage excessive self-medication. Even quite common pharmaceuticals, taken too often, will cause ill effects; and it is largely due to advertising influence that tranquillizers and nervous stimulants have been sold directly to the public on a large scale in Western Europe and the USA in recent years. The claims made for these have been often frivolous, the hazards glossed over or left unmentioned. In 1947, the Pharmaceutical Society of Great Britain reported to the Ministry of Health on the exaggerated and sometimes fraudulent claims being made, the harm done in causing the public to postpone seeking medical advice, the general impairment of healthy relations between public and doctors and the pseudo-scientific nature of the advertising copy. It seems undeniable, even to-day, that the volume of advertising for proprietary medicines is out of all proportion to their value to the community.

There is no doubt, however, that standards of pharmaceutical advertising have improved in recent years, thanks largely to legislative effort. Before 1941

legislation dealing specifically with advertising did not exist in the majority of countries and this is still the case in, for example, Belgium and the Netherlands. Special laws do exist in Argentina, the Dominican Republic, France, Germany (Federal Republic), Greece, India, Ireland, Peru, Poland and Spain; but all these laws came into being only during the last twenty years. Italy is still in process of recasting existing legislation. A general feature of such measures is the very close control of the direct approach to the public, and some countries, such as Denmark, France, and the United Kingdom, specify in great legislative detail what is to be understood as an advertisement so as to leave no loopholes. In some cases it is compulsory for promoting companies to apply for registration or the supply of a sales permit for each new product, and use may be made of the conditions of registration to control the advertising matter concerned. Registration or permits are required in Austria, Brazil, Colombia, Denmark, France, Greece, Luxembourg, Poland, and Switzerland. Most national regulations prohibit the advertising of drugs which are available only on medical prescription; and in many countries advertisements containing references to specified diseases such as venereal infections, tuberculosis and cancer are forbidden. It is also common for fallacious claims regarding the composition and effects of products to be made illegal. Secret remedies are frequently, but not universally, prohibited and in many countries it is required that the analysis of the product be printed on the wrapper. In some countries such as Denmark and Italy, control extends widely outside the purely pharmaceutical field to include dietetic products, infant foods, dressings and surgical appliances. There is, of course, a wide range of detailed prohibitions which may be applied legislatively and the stringency of control differs from one country to another. Some of the methods which are forbidden include: advising treatment independently of medical advice; arousing alarm in the public; claims of infallibility; the offer of samples or of money back if unsatisfied; the use of photographs and testimonials from patients; and the use of expressions indicative of medical support. While, in most countries, the authorities confine themselves to seeing that the regulations governing prohibitions are not infringed, there are some—Denmark, the Dominican Republic, France, Luxembourg, Peru, Poland and Spain—where the whole of the advertising material must be submitted for direct censorship and approval.

In contrast with this generally stringent control over

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Advertising to the public, "technical" advertising to doctors, dentists and members of allied professions is usually left unrestricted in the belief, presumably, that those at whom it is aimed are sufficiently expert and well informed to guard themselves against misrepresentation. But is this always so, particularly, under present-day conditions when busy practitioners can barely keep abreast of the flood of new products? C. A. Morrell points out, in a memorandum to the WHO Expert Advisory Panel on the International Pharmacopœia, that doctors may sometimes be as vulnerable as patients to high pressure salesmanship.

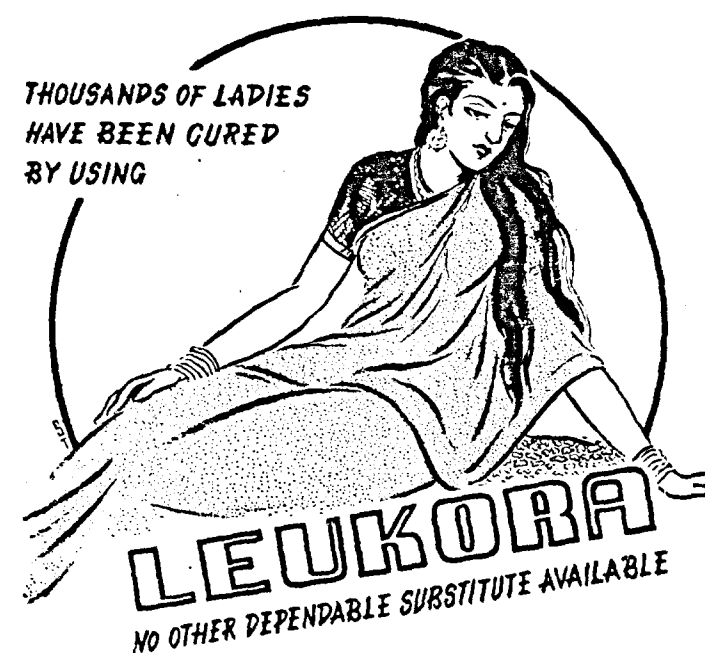
Possibly for this reason certain countries exercise some degree of control over this form of advertising, and in Turkey all such material must be submitted for censorship to the Ministry of Health.

The survey published in the Digest covers legislation in the following countries: Argentina, Austria, Brazil, Canada, Colombia, Denmark, Dominican Republic, France, German Federal Republic, Greece, India, Ireland, Italy, Japan, Luxembourg, Peru, Poland, Spain, Switzerland, United Kingdom, USA and Yugoslavia.

MALARIA ERADICATION STAMPS

Simultaneous issue of malaria eradication postage stamps by the Member States of WHO was recommended by the committee as a sound publicity measure. It was felt that in addition to awakening world-wide public interest in the programme it would be possible to collect some money by the sale of the special stamps to be used in the national and global war against

malaria. The question of improvement of nutrition throughout South East Asia was considered in its many aspects when the committee met as a group for Technical Discussions on the subject: "The Role of the Public Health Department in the Improvement of Nutrition". The recommendations of the group will be sent to all the Member Governments.



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CURRENT TREATMENT OF FILARIASIS

BY DR. R. SUBRAMANIAM, M.D., M.R.C.P. (Lond.)

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CONSIDERABLE advances are taking place in the treatment of most of the tropical diseases, and Filariasis is no exception. All the same, there may be many aspects of the disease which still need a solution. The treatment of the condition is still in an unsatisfactory state. The clinical manifestation of this disease may broadly be divided into two groups—(1) The Septic group and (2) the Obstructive group.

The Septic group is essentially a clinical manifestation of secondary streptococcal infection. The different clinical manifestation that may be met with in this group are :

- (1) Lymphangitis,
- (2) Filarial abscess,
- (3) Lymph scrotum,
- (4) Filarial synovitis and arthritis,
- (5) Filarial septicaemia, and
- (6) Filarial orchitis.

In contrast to this septic group, in the obstructive group, we find that the symptoms are of a mechanical nature. The adult worm blocks one of the lymphatic channels and thus interfere with the lymphatic drainage of the part. The obstructed lymph oozes out causing swelling. The clinical manifestation in the obstructive group are :

- (1) Elephantiasis of the various parts of the body, such as External genitalia (scrotum, penis and vulva). The other parts that may be affected are the legs, arms and the breast. The one that is most commonly seen is lymphangitis of the leg. As a rule it is unilateral, but rarely it is bilateral.
- (2) Glandular enlargement:—The glands may reach a fairly large size. The groin glands are often involved.
- (3) Chyluria, hæmaturia, hæmatochyluria. These

are due to the blocking of the lymphatics draining the bladder and the kidney.

- (4) Chylous hydrocele. When the lymphatics draining the scrotum is obstructed in chylous ascites, the lymphatics in the abdomen ruptures.

- (5) Lymphuria:—A comparatively rare clinical manifestation.

In the septic group it may be possible to demonstrate the microfilaria in the peripheral blood when taken at night time. In contrast to this in the obstructive group, as a rule, microfilaria cannot be demonstrated in the night blood. It is believed the microfilaria are discharged into the lymphatics at the site of obstruction and drained over by another into the blood stream and in their death, they offer an excellent media for streptococcal multiplication and it is the streptococcal infection that is responsible for the fever. And when the streptococcal infection does not take place, only swelling takes place without any febrile episode. These are pure obstructive cases. In these cases the filarial origin of the swelling can be established only by doing the filarial antigen test. For preparing filarial antigen, one can employ the lizard filaria or the filaria that can be extracted from cats and dogs. With the intense D. D. T. programme, the incidence of lizard filaria has gone down appreciably.

In the literature, microfilaria is described as a harmless parasite. It is not harmless on all occasions. There are certain conditions under which it may produce symptoms. The symptoms that may be attributed to microfilaria are Vertigo, urticaria and creeping eruptions in the skin. The vertigo that is caused by microfilaria can be controlled by eradication of the microfilaria. Apart from these symptoms that the patient may suffer, it is through the microfilaria that the disease is transmitted from person to person. So if microfilaria is demonstrable in the peripheral blood both in the interest of the patient himself and in

the interest of the community at large, they should be treated.

TREATMENT

The main object in presenting this Paper is to avoid terrible wastage of money caused by treating with Piperzine compound all manifestations of filariasis. Piperzine compounds are toxic compounds and may cause liver damage. Piperzine Compound may be prescribed with advantage to eradicate microfilaria, or where microfilaria is productive of symptoms as vertigo or creeping eruptions in the skin and in all other manifestations of filariasis for the septic variety. For the obstructive variety, it is useless. Though the filarial symptoms are due to septic conditions, the super-added sepsis is due to streptococcal infection. In this case, either sulpha compounds or an antibiotic compound is indicated. In the mass treatment even the basic sulphanilamide controls the fever rapidly. Prescribing Piperzine compound in these cases will have no effect at all on the temperature. In addition in the control by the chemotherapeutic agents, symptomatic treatment is necessary, that is, bandage of the affected part with ichthyol and glycerine and keeping the affected part at rest in an elevated position. Where facilities are available, ultra short wave therapy is also indicated or moist warm fomentation can be given with considerable relief of symptoms. If, on the other hand, the obstruction is causing symptoms, by appropriate surgery, relief can be given.

In the treatment of filarial abscesses, once fluctuation occurs, incision and drainage is indicated in addition to chemotherapy. If the patient seeks aid sufficiently early at a time where there is no induration, one can achieve very good results, by giving fairly heavy doses of either penicillin or one of the spectrum antibiotics. Whenever there is abscess and it incised it is worthwhile to have the pus cultured, so that the antigen sensitivity can be determined. This helps to choose the proper antibiotic.

Lymph scrotum is comparatively rare. Here the patient complains of fever with rigor. Fever may occur at regular or irregular intervals. When it occurs at long intervals, there is a relationship with exercise like mountain climbing or long distance bus journeys. Patient gets severe rigor. Temperature shoots up to 103—105 and in the next few hours profuse oozing of lymph occurs necessitating change of under-garments frequently. The oozing stops at the end of 3 or 4 days

and the temperature also subsides fairly fast with the morning treatment, generally in 24—48 hours. In these cases during the attack of the fever, suspensory bandage affords relief. Moist worm fomentation may be of considerable value. The technique adopted is to wring out a turkish towel in very hot water and sprinkling liberally boric powder after squeezing the towel. Part of the boric powder dissolves in the towel itself. This moist boric powder with the moist heat towel is applied over the inflamed scrotum for 2 or 3 hours. The towel is kept in position so long as the heat is retained, and once the heat passes off the process is repeated several times. The application of the moist heat takes away the irritation and patient is relieved in a short time, though the oozing may not stop. If the oozing lymph is collected and centrifuged, one may sometimes be able to demonstrate microfilaria. After the oozing stops, the scrotal skin once again assumes the normal texture, leaving no evidence of the acute inflammation it has just undergone till the next bout of lymph scrotum occurs.

Filarial orchitis is treated as for lymphangitis.

Filarial septicaemia is characterised by high fever when the patient is in an unconscious state. Instances of this condition has become comparatively rare with the introduction of the modern antibiotics. In some cases the microfilaria may be demonstrable even in the day blood. This condition carries a comparatively serious prognosis and should be treated energetically. In my experience it is not safe to depend upon penicillin alone for the treatment of these cases. Any one of the broad spectrum antibiotics like Tetracyclines preferably I. V. may be tried. If Tetracycline fails, then N. A. B. 0.4 gms. may be given I. V. or Mepharside 0.04 gms. I. V. Sometimes when these agents have failed, I. V. injections of Crooks Collosa Iodide 5 to 6 c. c. of 1% solution given I. V. may succeed, but as a rule the prognosis is grave and the condition should be treated energetically, if life is to be saved.

Obstructive group:—For the acute lymphangitis where the symptoms are due to the obstructive with superadded infection, the infection is first controlled by giving Sulphadiazine or Penicillin I. M. The affected area of the leg is elevated and the surface painted with Ichthyol Glycerine.

In the treatment of obstructive cases, the treatment is directed against adult worms and whenever

possible, surgery is indicated. So far no effective drug is found to tackle the adult worm without causing any damage to the host tissue. A large number of drugs have been tried like Antimony compounds available under the trade names of Stibatin, Ureastibamine, Anthiomaline and arsenic preparations Mepharside and Neosalvarsol. The effect of the arsenic and other compounds give some adverse results and reproductive capacity of the adult parasite and also some inhibition on the adult parasite activity. On administering these compounds, it was clinically observed that symptoms were latent for varying periods, the period varying from 6 months to one year. Anthiomaline intramuscularly 2 c. c. ampules of 0.5% weekly twice. It is a very painful injection causing at the site of injection and also in the shoulder joints. About 10 injections are needed to bring about amelioration of the symptoms, clinically. If the injections are not repeated at the end of a year, symptoms recur. The use of this compound has fallen into disuse due to the introduction of more effective drugs.

The use of Piperzine compounds does not cause any reduction of the size of the swelling, nor does it confer any immunity from the periodic fever. Further while on Piperzine compounds, patient may exhibit toxic side effects like headache, nausea, vomiting and muscular weakness. There may be aggravation of the glandular swelling while the patient is on Piperzine compounds in this country. Liver damage may also be observed as shown by transient jaundice, or precipitation of cirrhosis liver. There may also be pain where the adult parasite is lodged. In cases where the microfilaria can be demonstrated even though they are asymptomatic in the larger interests of the community, they should be given 2 mgms. per kgm. of body weight of Piperzine compound for a period of three weeks. The Piperzine compound may flare up latent tubercular infection. Excepting this complication, the other undesirable features of Piperzine compound can be controlled by antihistamine drugs. Patients may volunteer passing round worms and getting rid of their ascaris infection as a result of this drug.

For cases with moderate swelling, where the leg is only $2\frac{1}{2}$ to 3 times of its normal size, I found that the administration of Sodium Flouride 1 c. c. mixed with 1 c. c. of 2% procaine given subcutaneously weekly for 4 weeks gives good results. The dosage of Sodium Flouride injected is very small and does not produce any adverse results. I know more than 3,000 cases have been treated not only in Madras General Hospital

but also in other parts of the country without producing any adverse results. Sodium Flouride has a tendency to flare up streptococcal infection. So before starting this injection, it is worth while to have the teeth cleaned and also to give a course of sulphadiazine for 5 days $1\frac{1}{4}$ gr. t. d. s., p. c. If necessary, i. e. if the elephantoid swelling has not come down appreciably, the injections may be repeated three months later. Three or four such courses may be necessary before complete reduction to normal size is achieved.

Sodium Flouride as described above is available in the market under the trade name of Florosid (East India Pharmaceutical Works, Calcutta). Sodium Flouride seems to have well-marked inhibiting effect on the adult passage. This does not eradicate the microfilaria like the Piperzine compound but their activity becomes sluggish in patients.

Messrs. Gluconate Company has introduced in the market an extract from the plant Vitex Peduncularis under the trade name of "Filocid". We have tried this on a number of cases and found intramuscular injection of this Filocid can be given every third day, in all 12 injections. We found Filocid was effective by itself. It can be used as an adjuvant drug after a course of Flurocid therapy, but curiously enough, where Flurocid reduces the swelling, Filocid also fail on most occasions. To my mind, the great advantage of Filocid is, that it is absolutely non-toxic and they are comparatively painless and several course can be repeated at intervals of three months. If still the results are not satisfactory, a course of T. A. B. vaccine (Prophylactic) starting with $1\frac{1}{4}$ c. c. subcutaneously increasing the same every third day by $1\frac{1}{4}$ c. c. upto 1 c. c.—10 to 12 injections may be given. If at the end of 12 injections, the result was not satisfactory the prophylactic drug was diluted suitably with double-distilled water and 30 million, 50 million and 100 million per c. c. were given I. V. every fourth day. The dosage was not increased if at any time the reduction was found to be severe. The basis of this therapy with T. A. B. vaccine is, typhoid ulcers heal without any scar formation. So typhoid bacilli must be having fibronolytic action. The result of this I. V. T. A. B. vaccine was found to be extremely gratifying. Only, the patients have to be under observation.

Another drug acting on similar line namely Hyaluronidase available under various trade names as Permease, Rondase Hyalase can be given subcutane-

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ously at weekly intervals in two to three injections. These injections are also painless. Sometimes their results are very good, but whatever may occur, occurs in 2 or 3 injections; thereafter no further improvement is noted.

A few Western authors have reported the value of administering Cortizone for elephantoid state of the legs. We have tried these steroid hormone therapy in Madras General Hospital for a few cases. On account of the cost of the drug, the trial had to be restricted to a small number. The reduction that was observed as compared to Sodium Fluoride therapy was very poor and what little was achieved was very temporary. Our own impression is that as per Sodium Fluoride therapy, steroid therapy is very inferior. Apart from the prohibitive cost, the side reactions are very serious.

Madhurai and others have noted that the administration of Sulphone 100 mg. tablets once a day controls the recurrent attacks of fever in a large number of

cases, though on rare occasions, Sulphones may also fail. Prophylactic is directed against the mosquitoes and not by giving Piperzine compound on a mass scale. Piperzine compound being the toxic drug and there being animal hosts besides human hosts, it is not advisable.

SUMMARY

The current trends in the treatment of filariasis is outlined briefly.

The uselessness of Piperzine compound for all manifestations of filariasis is condemned.

In the treatment of elephantoid condition, Sodium Fluoride, Vitex Peduncularis, T. A. B. vaccine and Hyaluronidase are advocated.

About Prophylactics, it is the control of the mosquitoes that should be aimed at.

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The photographic lens in medical photography

By Prof. DR. HARRY ZÖLLNER, JENA

(Lecture on the occasion of the 1st International Congress for medical photography and cinematography in Düsseldorf, from September 27th to 30th, 1960).

THE standard photographic lens bought with the amateur camera fulfills many tasks in medical photography. Modern calculating machines permit an optimum correction so that the imaging effect of modern photographic lenses leaves nothing to be desired. The selection and processing of optical lenses ensures a true colour reproduction of various lens systems. Light intensity and angular field can be selected within a wide range. Several special fields of medical photography are discussed below.

For a number of medical problems an extension of the spectral range toward the invisible range is of importance, infrared photography playing a greater part than ultraviolet photography. In the infrared range the spectral limits are determined by the sensitivity ranges of the photographic emulsions (Fig. 1.). These range from 700 m μ to 1050 m μ . Optical lenses transmit in this spectral range equally as in the visible range. The problem complex of infrared photography centres on the correction of image defects and image position. With standard photographic lenses chromatic defects can be corrected only for the visible spectral range, in the infrared range there is bound to occur a shift in the image plane.

When exposing, the lenses must therefore be re-focused. For this purpose modern lens-systems are provided with a special index mark for infrared exposures. Focusing is carried out with the lens system in the visible range, effecting a re-setting of the

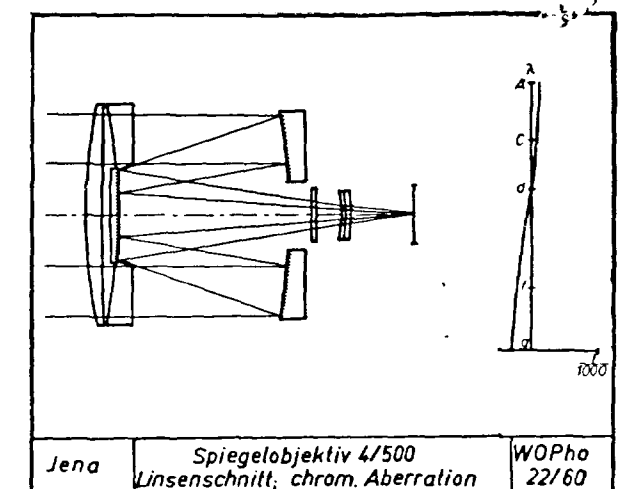


Fig. 2.

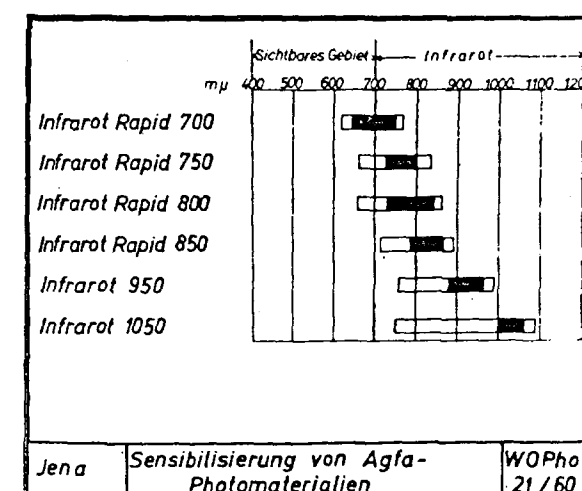


Fig. 1.

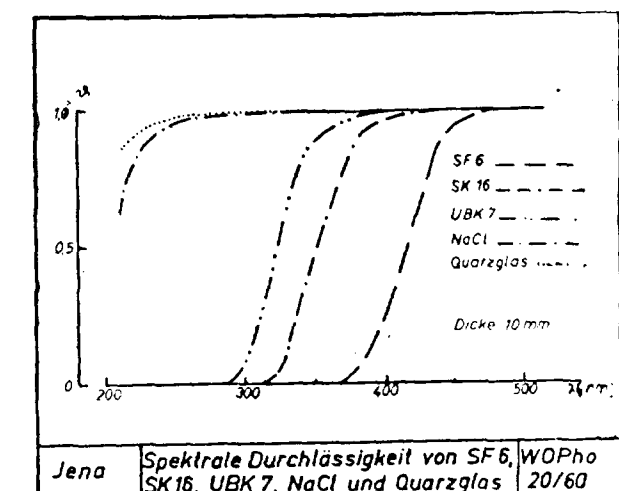


Fig. 3.

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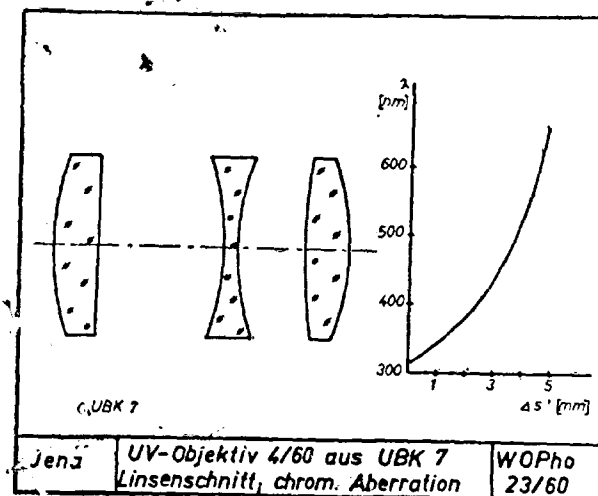


Fig. 4.

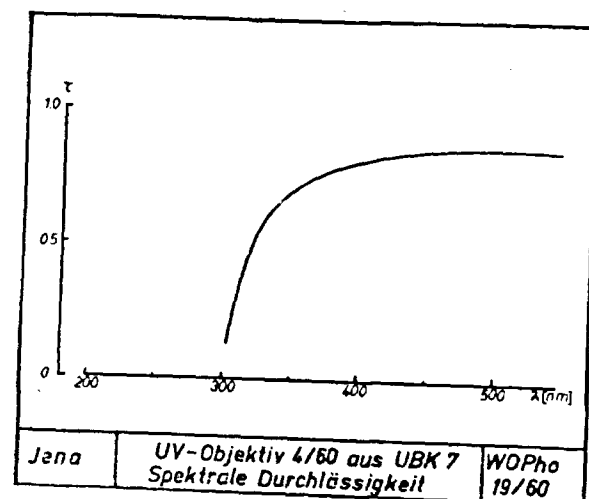


Fig. 5.

distance by the amount of the distance of the infrared point to the standard index. This correction is not required when working with reflex lens systems which however are available for general photography with long focal lengths only. At this juncture mention should be made of the reflex system 4/500 of the VEB Carl Zeiss JENA (Fig. 2) which has no setting difference for the visible and the infrared range.

Contrary to this the limits of ultraviolet photography are determined by the spectral transmission of the lenses or optical media used. (Fig. 3.) In addition to optical glass, also rocksalt and quartz may be used. With the latter the transmission in the UV range reaches up to 200 m u. Optical glass has a low transmission in the ultraviolet range. Only special glasses such as, e.g. the UBK 7 made by the VEB

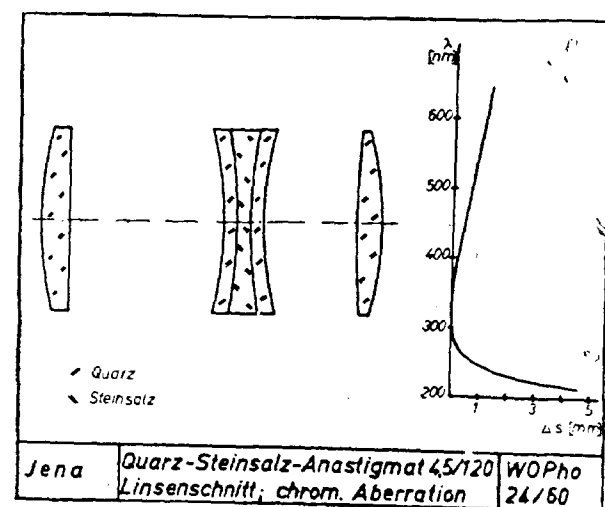


Fig. 6.

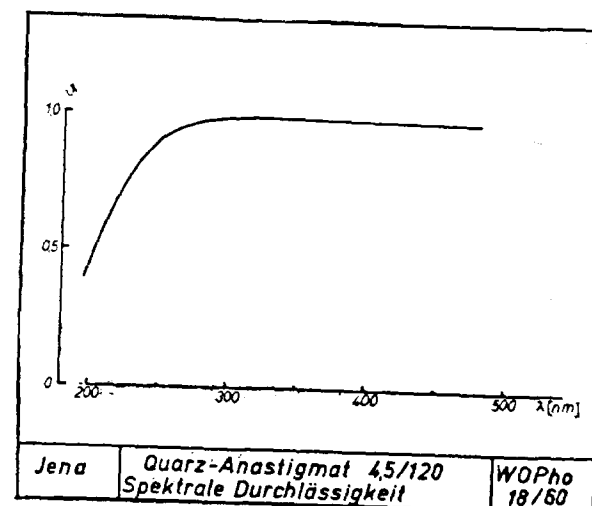


Fig. 7.

JENAer Glaswerk Schott & Gen., transmit up to 290 m u. With optical glass the limit of transmission lies at 350 to 400 m u. For standard lenses it is an advantage to cut the limit of the visible range which is also aimed at for a good colour reproduction. Colour film is sensitive to ultraviolet rays, so that such an exposure results in a colour stain. To prevent these it is required to as much as possible of the visible range. Lenses for ultraviolet photography must therefore be made of the above mentioned optical media. When using optical special glass such as the UBK 7 no chromatic correction can be obtained. With lens like the UV 4/60 of VEB Carl Zeiss JENA (Fig. 4) the image position depends on the wavelength of the photographing light. Therefore, this lens can only be used for work within a narrow range of the spectrum which is achieved by

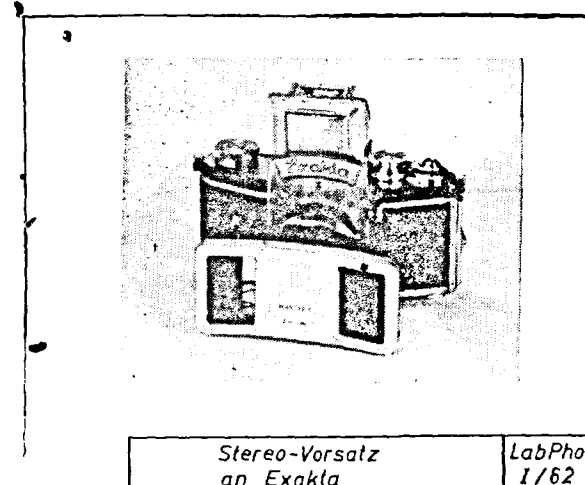


Fig. 8.

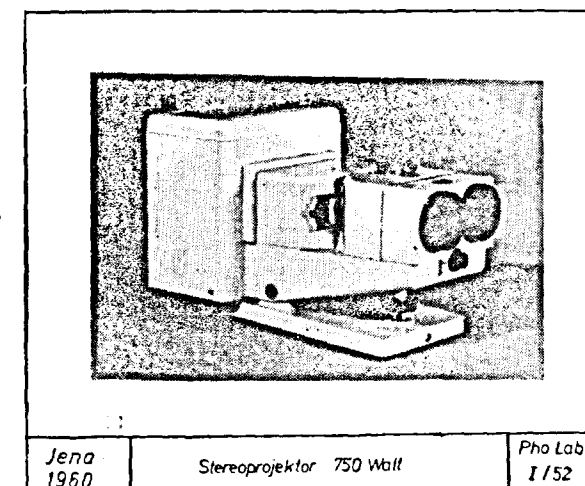


Fig. 9.

suitable filters. The transmission limit of this objective is 300 m u (Fig. 5). If a chromatically corrected system is required this has to be made of rocksalt or quartz, as is the case with the Quartz-Rocksalt Achromat of VEB Carl Zeiss JENA (Fig. 6). With this lens system focusing can be carried out in visible light and the exposure made in UV light. The limit of transmission of this system lies at 200 m u (Fig. 7).

In medical research the possibilities of ultraviolet photography are by far not exhausted. The difference between UV photography and fluorescence photography should be noted. In UV photography the UV radiation is used for photographing, whilst in fluorescence photography UV light is used for illumination and the fluorescent radiation in the visible range for exposure. In the latter instance the

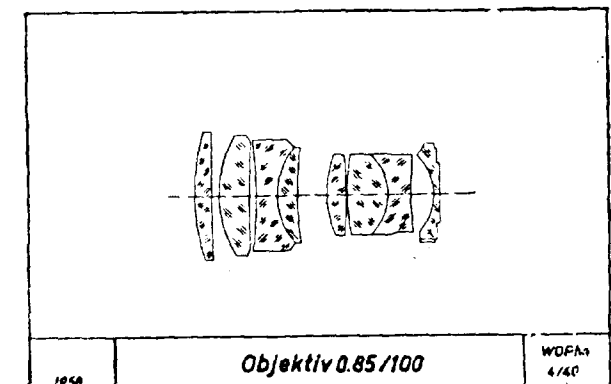


Fig. 10.

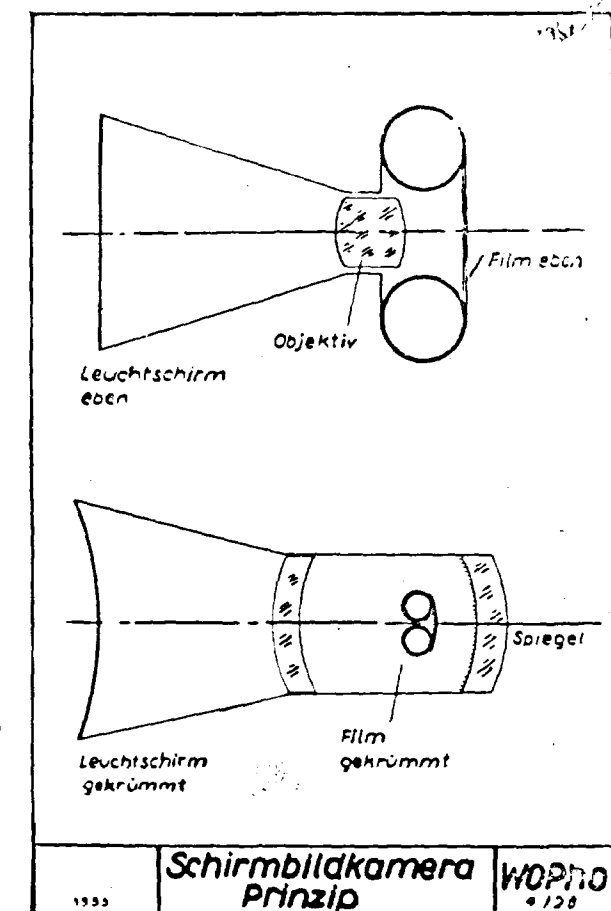


Fig. 11.

path of the rays of the camera must be blocked against UV light whilst with UV photography the visible light is filtered out.

A very important field is surgical photography. This is particularly important in medical instruction. The

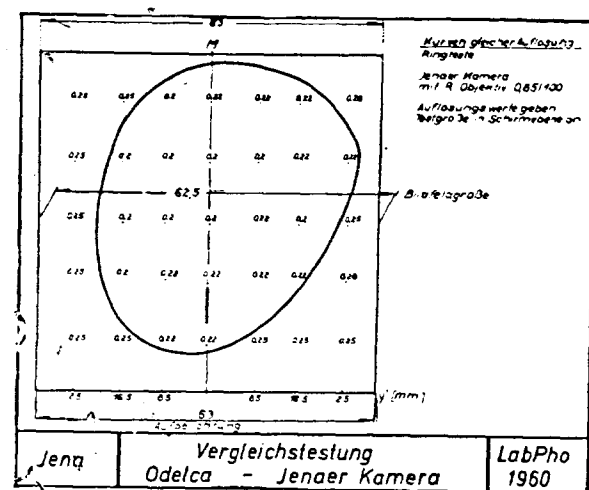


Fig. 12.

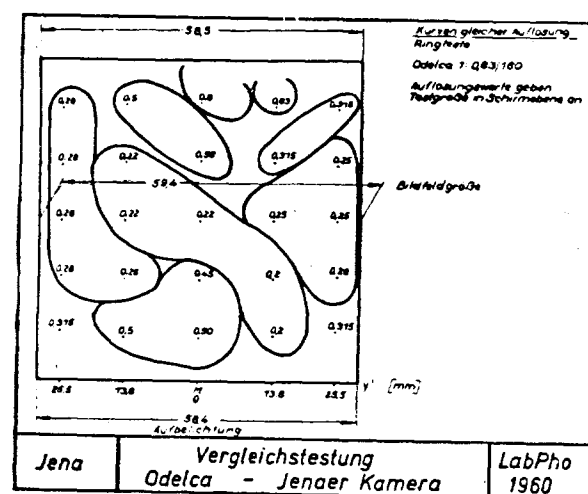


Fig. 13.

problem is to recognise various shapes with slight differences in colour. The student has at first no idea of the appearance, shape and colour of the human organs. It is therefore difficult, if not partly impossible, to form a clear opinion on hand of black-and-white photographs. Even colour photography cannot provide substantial progress. In medical text books line drawings are used which assist the impression of space. The ideal auxiliary for this is *stereo-photography*. For this purpose industry has developed photographic and projection apparatus which dispense with all problems in stereophotography and stereoprojection. With 35 mm cameras and suitable stereoattachments surgical photographs can be taken quite simply. The question of size, whether upright or horizontal, does not play any essential part.

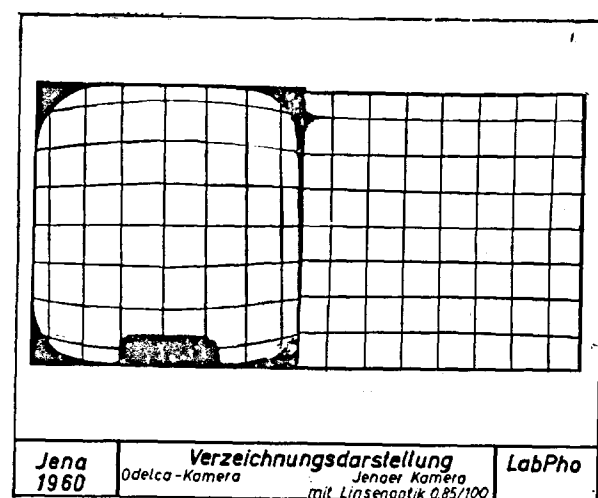


Fig. 14.

Such a technical device consists, for example, of a Zeiss stereoattachment to a 35 mm camera (Fig. 8) and a miniature slide projector (Fig. 9) with which the stereo exposures can be projected in the lecture hall.

Another very important special field to be discussed here is *X-ray screen photography*. The problems here consist of the lower brightness of the luminescent screen and the fact that instantaneous exposures have to be made to prevent bad definition. Modern development of photographic lenses has contributed much towards this aim. The X-ray lens system of VEB Carl Zeiss JENA (Fig. 10) has an aperture ratio of $f/0.85$ for medium size. As reflex system the Odelca has a so-called generalised aperture ratio of $f/0.63$. These two aperture ratios cannot just be compared with each other. With reflex systems there is a shading by the film and the film mounting, within the system (Fig. 11).

This shading is not taken into consideration in the specification of the generalised aperture ratios. Furthermore the two aperture values refer to different definitions. It may be assumed that the aperture ratio $f/0.85$ of the lens system corresponds to the generalised aperture ratio of $f/0.63$ of the reflecting system. The imaging performance of the lens system is better due to the more numerous possible corrections than that of a reflex system (Fig. 12, Fig. 13). In addition there results with the optical lens system, due to the plane position of the film, a more even distribution of definition than with the reflex camera. In the reflex camera luminous screen and film are

curved. This curvature results furthermore in a great distortion towards the edge of the image (Fig. 14). Due to the plane position of the film in the lens camera, there are still further advantages in designing such a camera and the possibility of a higher image frequency. With a lens camera up to 20 frames per second can be taken as X-ray cine exposure. These powerful systems will also play a decisive part in the

future development of optical image intensifying screens for X-ray examination apparatus.

These brief remarks on some special apparatus of medical photography show that the optical industry has provided all technical prerequisites and will continue to do so to provide research with all the aids required.

Obligatory Vaccination for Smallpox

Smallpox could not have been eradicated without vaccine. Jenner's great discovery was made many decades ago, yet epidemics of smallpox still decimate the population in a number of countries. These scientific achievements are really effective only when broadly applied in medical practice. In spite of the absence of smallpox infection in the USSR, vaccination is obligatory for everyone. It would be hard to find a single Soviet citizen who has not been inoculated. This is taken care of by sanitary and epidemiological stations, children's free consulting centres and special vaccination teams.

Can smallpox epidemics be eliminated in a country where the pathogens of that infection exist in nature as a biological species? Yes, it can. The strict observance of a rationally planned system of vaccination, obligatory for the whole population, is a necessary condition. Some other measures must also be applied and in the first place the complete clinical isolation of patients, to prevent the spreading of infection. The problem of complete eradication of smallpox has been raised in the World Health Organisation on the initiative of the USSR. The task will take some time but it is quite feasible.

The following unfortunate case recently took place in the Soviet Union: a Soviet painter caught smallpox during his stay in a foreign country. He returned home sick and so brought the dangerous infection into the country. No sooner was the disease diagnosed than the Soviet system for combating specially dangerous infections was brought into action. All persons who might have been in contact with the patient were carefully examined by physicians and all the inhabitants of cities and localities which could be threatened with infection were given new vaccinations. The results speak for themselves: the disease did not spread.

\$8.5 MILLION HEALTH AID

According to the programme proposals and budget estimates approved by the committee, the cost of WHO assistance in health programmes in South East Asia during 1963 will be 8.5 million dollars. The amount includes funds to be provided, mainly for supplies and equipment, by UNICEF and the UN Special Fund. The estimates will be forwarded for incorporation in WHO's world budget and final adoption by the World Health Assembly after consideration by WHO's Director-General and Executive Board.

Two important projects in the 1963 programme are to be financed by the UN Special Fund which realizes that investment in health is investment in economic prosperity. These are the first projects in which WHO will assist as an executive agency for the Special Fund. The amount involved—one million dollars—is to be spent on a survey of water supply and sewage for Greater Calcutta and on assistance to the Central Public Health Engineering Research Institute, Nagpur (India).

During discussion of the Regional Director's annual report, the committee expressed satisfaction with WHO's policy of giving priority to communicable disease control and training of health personnel in its aid programme. Some members stressed the need for an accelerated programme for smallpox eradication and greater assistance in the control of filariasis. Small plague outbreaks in India and Indonesia were regarded as dangerous pointers and it was felt that the situation needed to be watched carefully.

Statements on filariasis control, enteric diseases and the use of freeze-dried BCG vaccine were made by the Regional Director in accordance with resolutions passed by the thirteenth Regional Committee asking for information and action related to these subjects.

Early Diagnosis & Domiciliary - Treatment of Pulmonary Tuberculosis with a plan for its control

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“PHYSICIANS should soften the naked severity of science”—but in doing so, must not make the problem more difficult. Pulmonary tuberculosis is a problem which needs frank and bold approach. Besides the social and economic effects, the adverse and lasting psychological impact given by pulmonary tuberculosis on an individual is in no way less than its physical effect. In our country the total cases are estimated to be Five Million, total tuberculosis beds to be 23,000 and mortality rate to be 80 per 1,00,000. The incidence of tuberculosis has increased in Bengal three times since 1948, the increase in other provinces is not known, but it is felt that there is definite increase everywhere in the country.

Considering the limited sources of the Government and the public, it is the prime duty of the medical profession to find out cheap, effective and better methods to deal with this problem. For this, early diagnosis, isolation of established cases, proper and complete treatment, effective rehabilitation and sufficient education is basically required.

EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

- (1) **CLINICAL HISTORY**—Family history of bronchitis, asthma, pneumonia, pleurisy and tuberculosis should be taken. Past history of the individual should be taken in detail. History of contact and presenting symptoms be taken in patient's own words.
- (2) **PHYSICAL EXAMINATION**—Inspection, palpation percussion and auscultation of chest must be carried out in every case besides his general and systemic examination.
- (3) **PATHOLOGICAL INVESTIGATIONS**—In a case of pulmonary tuberculosis sputum

examination for acid fast bacilli is significant and must be done in every case, but as acid fast non-tuberculosis bacilli are also not uncommon so the culture examination is essential. E. S. R. should be done at regular intervals to assess the progress of the case. Urine examination for sugar and albumin done in every case is helpful.

- (4) **FLOUROSCOPY**—Moderate and advanced cases always and early cases at times can be diagnosed by Fluoroscopy but its main use is in checking of the established cases. Collapse therapy is also checked by screening satisfactorily.
- (5) **SKIAGRAMS & TOMOGRAMS**—Mass miniature radiography is of great help in detecting tubercular cases in the given population. When miniature film is not giving definite information, then large x-ray-film must be taken. It is better to keep in mind that infiltration, fibrosis, calcification or nodulation is not pathognomonic of pulmonary tuberculosis as these may be resulting from cancer, fungal infection, silicosis, abscess, bronchiectasis, chronic passive congestion due to heart disorder, calcified pleura and non-specific pleurisy. In all such cases culture of sputum will solve the problem. The minor cavities at different depths in lung fields, which are not detected by ordinary x-rays are seen in tomograms and thus they help in selecting cases suitable for surgery.

CLASSIFICATION OF PULMONARY TUBERCULOSIS

The two classifications prevalent at the moment are of Britisher's and American's and both are good

enough, therefore one of them should be strictly followed by every physician.

- (I) **British Classification of Pulmonary Tuberculosis**—(Reproduced from “PULMONARY TUBERCULOSIS” by Pagel, Simmonds and Macdonald):—

(A) Classification of patients suffering from pulmonary tuberculosis.

(B) Classification of result of treatment in cases of Pulmonary tuberculosis.

(A) CLASSIFICATION OF PATIENTS SUFFERING FROM PULMONARY TUBERCULOSIS

(1) **Sex-Age Group** :—

(a) Patients grouped according to sex.

(b) Patients grouped according to age.

(1) Children under 15 years.

(2) Adults—over 15 years.

(2) **Type Group** :—

(i) (a) **Respiratory tuberculosis**—organs involved include—Lungs, Pleura, Intra-thoracic Glands, Trachea and Larynx.

(b) **Non-respiratory tuberculosis**—In which one or more other parts are involved besides these in the above group.

CLASSIFICATION OF ALL TYPES OF TUBERCULOSIS

(i) **Class A** :—Cases in which tubercle bacilli have never been discovered in any exudate, excrement, discharge or tissue (T. B. Minus)

(ii) **Class B** :—Cases in which tubercle bacilli have been found at any time in any exudate, excrement, discharge or tissue (T. B. Plus).

CLASSIFICATION OF PULMONARY TUBERCULOSIS

(i) **Group 1** :—(a) Slight constitutional disturbances with limited physical and radiological signs.

(b) Physical signs either present in one lobe only and in case of an apical lesion of one upper lobe, not extending below the 2nd rib in front or not exceeding an equivalent area in any one lobe; or where these physical signs are present in more than one lobe, they should be limited to the apices of upper lobes and should not extend below the clavicle & the spine of the scapula.

(c) Radiological findings should be limited to mottling involving a total area of not more than one zone. No complications (tuberculous or other) of prognostic gravity are present.

(ii) **Group 2** :— All cases which cannot be placed in group (b) & (c)

(iii) **Group 3** :—(a) Profound systemic disturbances or constitutional deterioration and with impairment of function either local or general.

(b) All cases with grave complications e.g. :— Diabetes Intestinal or Laryngeal tuberculosis.

(B) CLASSIFICATION OF RESULT OF TREATMENT IN CASES OF PULMONARY TUBERCULOSIS

(i) **Quiescent**—Cases in which general condition and exercise tolerance are good, there is no evidence of toxæmia, no tubercle bacilli found on three consecutive monthly examination and where x-rays point to retrogression of the lesion.

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Articles in original are invited for publication in this Journal on all subjects of interest to the medical profession. Accepted articles when published become the property of the Journal and should not be published in other Journals without our previous permission.

Manuscripts should be submitted to us duly typed in double space with wide margin on one side of the paper in duplicate. Footnotes and bibliographic references should be on the lines of the Quarterly Cumulative Index Medicus of the American Medical Association, in the following order:—

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SURGICAL & MEDICAL NEWS

(ii) *Arrested*—Cases in which the disease has been quiescent for a continuous period of at least two years, if it was respiratory or if the disease was non-respiratory and there are no indication that it might recur then the case is considered as arrested.

(iii) *Recovered*—Cases in which the state of quiescence has continued un-interrupted for a period of five years.

(II) AMERICAN CLASSIFICATION OF PULMONARY TUBERCULOSIS

(1) *Minimal*—Minor lesions without excavations involving one or both lungs in total lung area not more than an area equivalent to the area above 2nd costochondral junction anteriorly and body of 5th thoracic vertebra posteriorly—

(2) *Moderately Advanced*—One or both lungs may be involved by disseminated lesions which may extend in one lung area, or, dense lesions in one third lung area, or, cavities the total diameter of which is not more than 4 cm.

(3) *Far Advances*—Lesions more extensive than (2).

EFFECTS OF CHEMOTHERAPY

Basically the effects of natural regression of tuberculosis without specific treatment does not differ much from the effects of specific chemotherapy but the rapid bacteriostasis induced by the chemotherapy helps the nature in early and more complete healing of the tubercular lesion. It must be borne in mind that when the natural resistance of the patient is lacking or is very low, then the specific therapy does not help much in cases of tuberculosis. Cessation of exudation and diminution of constitutional symptoms is noticed soon after starting chemotherapy in sensitive cases, in others the reactions to the drugs used predominate. The net result of anti-tubercular treatment is judged by the improvement in symptoms gained in weight and improvement in physical and radiological signs.

OCTOBER 1961

BRIEF PHARMACOLOGY OF SPECIFIC CHEMOTHERAPEUTIC AGENTS

(1) *Streptomycin*

Streptomycin is mainly effective against Gram-negative Organisms, but it is also highly effective against *Mycobacterium tuberculosis* and certain non-acid-fast gram positive organisms. It is both bacteriostatic and bactericidal depending on the concentration. It acts mainly against resting and slowly growing organisms.

Streptomycin given orally is not absorbed adequately so no systemic effect is noticed. When given by intramuscular, subcutaneous or intrathecal route the systemic effects are seen. Usually 1—2 gm. of the drug is given in 24 hours to an adult and accordingly less to infants and children. In cases of pulmonary tuberculosis an adult is given 1 gm. of streptomycin, daily on alternate days or biweekly by the intramuscular route. Daily injections are more effective.

Streptomycin has low sensitising capacity except as a skin contact and it is due to this reason that reactions are seen occasionally in the nursing staff instead of those receiving it. Toxic effects include drug fever and eruptions, joint swellings, jaundice, hepatomegaly, blood dyscrasias, vertigo and neurologic damage involving 2nd, 5th and 8th cranial nerves. Streptomycin sulphate which has a reversible action, effects the vestibular apparatus more and Dihydrostreptomycin which has irreversible action effects more the auditory function. On the whole DHS is better tolerated than streptomycin sulphate. Its excretion is through kidneys.

Resistance to streptomycin, when used alone, develops rapidly, but it depends more on the duration of the treatment than the daily dosage. Organisms resistant to streptomycin sulphate are also resistant to dihydrostreptomycin.

(2) *Isonicotinic Acid Hydrazide*

INAH though mainly bacteriostatic is also bactericidal against growing organisms. It is ten times more active than streptomycin and forty times more active against PAS. When used with streptomycin or PAS it has synergistic action and cross-resistance among these drugs do not occur.

INAH is very readily and completely absorbed after oral administration. When taken intramuscularly, though rapidly absorbed, is also excreted rapidly.

INAH diffuses freely in C. S. F. and other body fluids and also penetrates to a lesser extent in caseous lesions. Usually it is given in 200—300 mg. per 24 hours to an adult in divided doses, when the case is an average one. In tubercular meningitis and miliary tuberculosis higher doses up to 600 mg. per day can be given to an adult. This high dose is given till toxæmia of the patient comes down and then it is gradually lowered to the usual daily dose.

INAH shows undesirable effects in the form of periplural newritis, muscular twitchings, hyperreflexia, vertigo, drowsiness, constipation, psychoses, jaundice, convulsions and blood dyscrasias like leukopenia, Eosinophilia, purpura etc. Resistance to INAH develops about one thousand times more rapidly than streptomycin when given along. It is also excreted through the kidneys.

PARA-AMINOSALICYLIC ACID

Though PAS is a less potent antitubercular agent as compared to streptomycin and INAH even then of reliable value for its specific action in tuberculosis. It is bacteriostatic and affects mainly the virulent organisms salicylates an Methionine when taken along with PAS reduce its activity. Potassium salts of PAS should be used in cases of tuberculosis with pregnancy or congestive heart failure.

• Its absorption after oral administration is complete and it diffuses in tissues, pleural and peritoneal cavities sufficiently and also to a doubtful extent in CSF it is excreted through the kidneys.

PAS is given to an adult in 8—16 gm. per day orally divided in 3—4 doses. Usually 12 gms. are sufficient for desired therapeutic effect. It should preferably be given between or just after the meals to avoid gastrointestinal upset which is quite common with this drug. Besides this drug fever and eruptions also result at times. Resistance to PAS develops but very slowly. PAS plays significant role in prolonging the development of resistance of mycobacterium tuberculosis against streptomycin and INAH when it is used along with these drugs. It has also synergetic action with them.

Viomycin, Corticosteroids, Phytobin—272, Caprynic compound etc. have their place but should not be used as a routine unless the reaction to the three main drugs—Streptomycin, INAH and PAS do not compel or when there are proper indications especially for corticosteroids.

ADVANTAGES OF DOMICILIARY TREATMENT

Fortunately in majority of cases of pulmonary tuberculosis, neither any major or minor surgery nor any complicated medical procedure is requested, therefore most of the cases can be satisfactorily treated in their homes under efficient medical supervision, provided there is provision of required drugs, collapse therapy and in the nearby area the x-ray and laboratory facilities are available, for the regular check-up. "The results in patients treated at home are as good as in patients treated in hospital. With a simple drug-combination of isoniazid and PAS given for twelve months, 90% of advanced cases can be rendered sputum-negative provided the bacilli are sensitive to these drugs. The use of isoniazid alone is not so effective".

"The incidence of tuberculosis developing in families of patients treated at home has not been any greater than the number in the families of patients treated in the sanatorium".

"Contacts of home treated patients were not exposed to any special risk of contracting the disease as compared with the contacts of those treated in sanatorium, but it must be emphasized that the patients were given effective treatment".

Domiciliary treatment is cheaper and practical and will be preferred by majority of cases, because the psychological effect is more favourable. Here diet will also be to the satisfaction of the patient.

Thus the sanatoria and hospital beds can be spared for emergency cases and those requiring surgery.

PLAN FOR EFFECTIVE CONTROL OF PULMONARY-TUBERCULOSIS

Unless a unified plan on country wide scale suitable to environmental, social and economic conditions of India is not seriously undertaken, satisfactory results will never be obtained. The present set up only par-

tially treats the established cases, does not prevent the spread of the disease as open cases live freely amidst the society, so the net result is complete treatment of a few, spread of infection in many, disablement of a large number causing constant economic drain on the family and development of resistance in appreciable number of cases due to irregular and incomplete treatment due to various reasons and also constant psychological strain on the patient and his family. Therefore taking in the complete picture of the problem on nation wide scale, and also keeping in view the technical dearth and great in co-ordination in the present medical set up, the following plan is envisaged and it should be given a critical and thorough consideration:—

(1) Management

(1) The Plan must be uniform throughout the country and be administered centrally.

(2) If not possible in every subdivision due to economic reasons then in every district a tuberculosis hospital with adequate beds according to its population and incidence of disease must be started at the earliest. This hospital should have facilities of thoracic surgery besides laboratory and x-ray equipments.

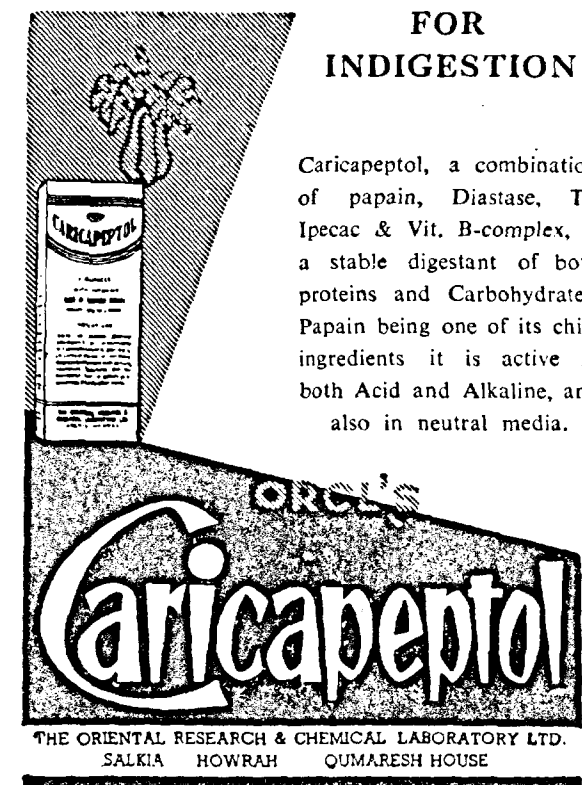
(3) Each subdivision must have a T. B. Clinic with facilities for mass miniature radiography and laboratory facility. Doctors working in this should do mass miniature radiography of the whole population of the subdivision taking help of teaching institutions, municipalities, block development departments, Panchayats and other governmental and social Organisations.

(4) Each subdivision should have T. B. Hostels or colonies. In these in one part far advanced cases should be kept as nothing much can be done for them, and in other part moderately advanced cases should be kept. Besides proper diet and drug treatment these patients should be given suitable training in few crafts and mechanics so that they remain useful to themselves at least, if not for their family and society. Good number of health visitors under a doctor should look after such institutions.

- (5) All established cases must be isolated compulsorily either in sanatoria, hospital or his own home under strict medical supervision.
- (6) States must take the sole responsibility of the entire expenditure to provide complete treatment to established cases. Government should know that begging is not going to solve the problem. The choice is between health and constant misery.
- (7) General practitioners must be taken into full confidence on equal par with government employees and be given equal responsibility in detection and treatment of tubercular cases. For this they should be given equal facilities.
- (8) Every T. B. institution whether a clinic, hostel, hospital or sanatorium must publish a detailed monthly report of new and old

FOR INDIGESTION

Caricapeptol, a combination of papain, Diastase, Tr. Ipecac & Vit. B-complex, is a stable digestant of both proteins and Carbohydrates. Papain being one of its chief ingredients it is active in both Acid and Alkaline, and also in neutral media.



cases, stating the treatment given and the result obtained. These reports collected at district and provincial levels should be forwarded to the centre, which in its turn should publish the same briefly and regularly giving the true and complete picture of the problem in the whole country. This will immensely help not only in knowing the actual status but will also be beneficial to the doctors. This will mean better treatment and better control. The hospitals and sanatoria should also issue regular reports in their area mentioning the vacant beds, so that suitable cases may be transferred to them for surgery.

- (9) Tubercular cases should be given free travel facilities by roads and trains whenever they are moving for checkup or treatment.
- (10) The arrested cases be given proper rehabilitation and adequate education so that they can earn their livelihood in special or sheltered industries not concerned with dust smoke, gases or chemicals.

(2) Therapy

Whims can be appreciated only in those who have acquired certain standing in their field but not in new entrants. Each patient has to be treated on his individual merit but certain basic principles must be accepted as such and it is advisable that the institutions and the persons who are doing routine work uniformly follow somewhat similar line of treatment.

A PLAN OF DOMICILIARY TREATMENT

- (1) REST —Complete rest till toxæmia and later gradual relaxation till normal daily activity achieved, if other things are favourable.
- (2) DIET —Liberal diet which is non-spicy and is high caloric, rich in protein and vitamins and minerals and moderate in fat and carbohydrate is preferred.

- (3) ISOLATION—All open cases must be isolated either in their home or hospital. Proper arrangement for the disposal of sputa should be made.

(4) SPECIFIC-THERAPY

(a) For first three months—

- (1) Streptomycin 1 gm. IMI daily.
- (2) INH 100 mg. tds. daily orally.

(b) For next three months—

- (1) Streptomycin 1 gm. IMI on alternate days.
- (2) PAS 4 gms. thrice daily orally between or just after the meals.

(c) For next six months—

- (1) INH 100 mg. tds. daily orally.
- (2) PAS 4 gms. thrice daily orally between or just after the meals.

(d) Repeat in same order if necessary further.

If the case is an average one and is sensitive to these drugs then only the above regimen is of value. The attending physician on the merit of individual cases should decide accordingly.

(5) SYMPTOMATIC THERAPY

- (a) For cough & expectoration—Suitable mixtures according to the severity of the cough and type of the expectoration.
- (b) For deficiencies—Replace iron, calcium and vitamin deficiencies with suitable tonics.

(6) COLLAPSE-THERAPY

In spite of certain deviation in modern trend the fact remains that pneumo-peritoneum given to suitable cases has

proved very useful and so must be given to suitable cases has proved very useful and so must be given when indicated for proper duration.

(7) SURGICAL INTERVENTION

Cases which need surgery are not suitable for domiciliary treatment and so they should be sent to sanatoria. Here the doctor should keep in view the dictum—"Pulmonary resection either kills or cures in pulmonary tuberculosis thoracoplasty usually does neither".

(8) REHABILITATION & EDUCATION

The aim of treatment is not to increase the number of disabled persons. Treatment will remain incomplete unless by proper rehabilitation and education, the patient is not made again a useful member of the society.

CONCLUSIONS

Medical profession should accept the challenge of pulmonary tuberculosis and with the help of the

government strive to wipe out this enemy. The treatment and control of the disorder should be done on the basis of unified plan throughout the country. Domiciliary treatment which is cheaper, equally effective and suitable under the existing circumstances should be preferred. Number of T. B. Clinics should be increased to make the control successful. Reliable data should be collected regularly. State should take the sole responsibility of expenditure control of T. B. will not only improve the health of the nation but also its economy.

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FIGHT AGAINST MALARIA

Malaria can be eradicated only with the aid of broadly applied measures for the destruction of the nidi of infection. The fact that mosquitoes are malaria carriers has been known for a long time. The sanitation of damp and bogged area and water reservoirs where mosquitoes collect is therefore the most effective measure. In the USSR bog draining work is accomplished on a big scale, but the main item in the set of anti-malaria measures is the use of insecticides. Those operations are conducted under the direction of parasitologists in bogged or damp localities and in reservoirs, often with the aid of aviation, which is the means of scattering insecticides over a large area. Figures showing the fall of disease in localities which were always regarded as most dangerous malaria centres in the USSR are eloquent proof of the results which can be obtained by that method. By 1958 the

total number of malaria cases in the whole of immense territory of the USSR was only two thousand five hundred.

It would be impossible, in so short an article, to deal with all the diseases which have been eradicated in the USSR; the list is too long.

The Soviet Government records measures against infectious diseases as an integral part of the general plan of national economy. The success which has been achieved in this field would have been impossible without the Government's support and if the state had not financed and carried out the measures proposed by the medical service which demand the combined effort of many government departments.

A Case-Record of Differential Diagnosis between Chronic Obsessional Neurosis and Schizophrenia in an Epileptic

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THE patient is a 25 year old married, hindu, male admitted first as an Out-patient in the Hospital on 5-6-1961, and subsequently was admitted as in-patient on 2-8-1961, as a Voluntary Boarder. He is working as Professor of Chemistry in a College.

The patient was admitted here with the following complaints:—

- (1) Strange feelings lasting for short duration gradually increasing in frequency in recent years;

Duration — 10 years.

- (2) Attacks of major epileptiform fits associated with tonic and clonic convulsion followed by loss of consciousness occurring at irregular intervals.

Duration — 9 years.

HISTORY OF PRESENT ILLNESS

About 10 years ago in the year 1952 when the patient was studying in Class X he used to experience strange feelings lasting for a few seconds. The patient was unable to describe these feelings but he used to feel a change in him. These feelings used to occur once in a month and was not taken much notice of in the beginning. He was performing his other duties normally and in the intervening period between these feelings he was completely normal. The patient describes his feelings differently at different times. As for example, once he was delivering lectures to his students, suddenly he felt that he was in another place in his imagination. It lasted for a few seconds and during this period, without informing his audience he left the class. After sometime he came back and started giving lecture without knowing that he has

done something abnormal during the period. This is a variety of fugue states.

At times the patient memorises his past vividly and it appears to him like a dream. As for example, once it happened that he felt that he has gone back to his childhood days, his intelligence is increased, he is attending school and with that he has become younger in age and his body is also changed like a child. This was a kind of experience for him. Sometimes he hears voices amounting to hallucinations commanding him to act in definite ways. He also feels various changes in his body like he has become abnormally fat, heavier or lighter in weight. Once he felt that he himself was a dead person, he experienced that his heart stopped beating and respiration ceased.

During these experiences the patient becomes confused temporarily and when the period is over he realises the abnormality of these experiences.

The patient also had major grandmal seizure which started first in the middle of 1953. The patient describes them as follows:—

He was taking rest after finishing his lunch. Suddenly he dropped down making a sound from the mouth. After that he had tonic and clonic convulsion followed by loss of consciousness. Total duration of the fit was 3 minutes. The patient had amnesia for the attack. His mother witnessed the fit. He was taken to a local practitioner and was prescribed Luminal and Mesantoin. After one year he had another major seizure and this time his medicine was changed to mysoline and Mesantoin. Altogether the patient had 8-9 major attacks similar in nature as described above. He had no aura during these attacks. His convulsion was generalised and detail history was not available regard-

ing any focal or lateralising sign at the onset of the attack. He used to feel dull and depressed after these attacks. Most of the major attacks he had at his home and during sleep except in one or two occasions when he had attacks outside. He had no uncinat fits, headache, vomiting, and dimness of vision not reported.

Other than these strange feelings and major attacks the patient gets bizarre ideas and thinking which is described later.

Past History

Before 1952 the patient did not suffer from any fits or strange feelings and ideas.

Personal History

Birth and early development normal.

Education

He has passed Matriculation Examination in 1953 and was placed in 1st Division. Passed I. Sc. in 2nd division in 1955. Passed B. Sc. (Hons.) securing second class in 1957. Passed M. Sc. in Chemistry in 1959 securing Gold Medal.

Sexual History

He had habits of masturbation since childhood. He had homeosexual relation while studying in school from Class VIII to X. He was a passive partner. He had to submit before his boy-friends during these intercourses mainly out of fear. He states that he did not have much pleasure out of it. He has read many literatures about sex and derives pleasure in sexual phantasies. After his marriage he wished to have sexual relation with his sisters-in-laws but never materialised it in practice because of shyness. Once he was lying down by the side of his sister-in-law and derived pleasure through manipulation of his genitals by her.

Marital History

The patient is married in 1955. This is an arranged marriage. He has two children living healthy. He volunteered that he was pleased to see his wife bleeding per vagina during first sexual intercourse, as this proved her virginity. His wife is not educated and the patient

used to hate her as she was below his standard. Sometimes he used to have death wishes for his wife. He never used to take his wife for pictures or other entertainments as was the family custom. He has normal affection and attraction towards his children. He reports he is normal in sexual adjustments.

Family History

The patient's father died when he was 2 years old. He was brought up by his mother and his paternal uncle was the guardian. His uncle is an Ayurvedic Physician. He has been suffering from frequent swinging of mood since 5 years. His uncle was a strict guardian. The patient was not allowed to mix with others in childhood.

His mother is 45 years old living healthy. She is much affectionate to the patient who is the only son of his parents. The patient's cousin did suffer from epileptic fits for 6 months which was controlled by Luminal.

The patient belongs to a joint family consisting of paternal uncle, aunt, two cousin, mother, wife and 2 children (boy & girl). They have two houses and the patient has 50% share in the property. There were frequent quarrels in the house between his aunt and mother. Mother wants him to become separated. The patient always avoids these conflicting situations without taking any step to solve practical problems. He thinks he would be ungrateful to his uncle if he is separated. He states he is willing to lose his share in the property for the sake of his uncle. But this merely points out his habit of escaping difficult situation and he may not actually do it.

PREMORBID PERSONALITY

The patient was shy and sensitive. He was much interested in reading books. He had little interest in outdoor activities like games and sports. He had limited friends. He was dependent upon his uncle in family affairs. He was lacking individuality in dealing problems. He used to feel inferior because of his inability to support the family. He had no habit of smoking or any other addictions.

PHYSICAL AND NEUROLOGICAL EXAMINATIONS

General, physical and neurological examinations and routine laboratory investigations show nil abnormality.

E. G. REPORT

Resting record does not reveal any abnormality. Photoc stimulation and sleep record show paroxysmal slow waves all over the brain more prominent over temporal lobe areas originating alternately on either side. This is suggestive of a focus in the diencephalon discharging in the brain alternately on both sides.

Mental Examination

The patient was frequently interviewed and observed during his stay in the hospital. He is neat and clean, appearance and spends his days by playing cards, attending social and reading all types of literatures. He gets very often strange feeling as he describes them. They sometimes resemble minor attacks of epilepsy. On one occasion while playing cards in company he tore one of the cards without his knowledge. Similarly while reading book he tore one of the pages during the attack. Once while seeing picture in cinema hall he was bewildered for the time being and came out of the hall abruptly. These attacks are mystery to him and occur suddenly.

Since his admission in the hospital he had only one major fit, at night 10 p. m., while he was sleeping in bed. He had an epileptic cry preceeding tonic and clonic convulsion which followed next and lasted for 2 minutes. This was a generalised convulsion and the patient was not aware of it. He received a minor cut in the tongue and was feeling dull and sleepy after the attack.

During his strange feelings the patient experiences feeling of familiarity, auditory hallucinations, dreamy state and clouding of consciousness which have been described in the present illness. Often than these the patient has peculiar ideas and bizarre thinking which have been revealed during interviews and abreaction.

His thought content can be revealed best by giving examples of his own statement. During abreaction the patient stated "I am worried about life's capacity for reproduction. I felt somebody was telling one very confidentially, the word "OM" is the essence of life. I am told by God how life is removed. Divinity often gets into me and gets me to do all sorts things—OM OM OM—if uttered will be able to do miracles and give life to inanimate objects". This shows passivity phenomenon and neologisms. The patient stated "I made my own lines in the palm, to create a better fate

line and intuitive line, the way I wanted them and kept my hand under the head hoping Lord Brahma would make these lines permanent". This reveals his belief in Magical thinking.

The patient occasionally smells his urine like sandal wood. He believes that this might be explained by the fact that the sandal wood he smelt might have got registered in the brain and that this might pass through his urine.

All these are suggestive of early stages of gross thought disorder. He describes his symptoms in a monotonous tune of words and the affect associated with it shows marked blunting. He also hears voices which offer solutions to problems in his subject. He has depersonalization and derealisation phenomenon as described before.

He also keeps elaborate and detailed daily notes about his complaints recording all his subjective feeling in each record. This is a sign of chronic obsessional state.

He is well oriented regarding time and place and is above average in intelligence. His attention can be aroused easily and maintained for a reasonable time.

The patient is aware of his illness. He wants to resume his duties as lecturer after being discharged from the hospital. He came for treatment voluntarily while he was performing his duties quite satisfactorily.

PSYCHOLOGICAL REPORT

Memory test does not reveal any marked memory disturbance.

Progressive Matrices tests show his intellectual efficiency is above average.

Bender Gestalt test shows difficulty at organisation that may reflect about some disturbance of the C.N.S.

Projective tests show schizophrenics, paranoid and depressive features accompanied by anxiety.

SUMMARY

The patient is a 25 years old married man of asthenic build. He is an introvert and he is of passive and dependent personality. He lacks assertiveness as he

is scared to go against his uncle in spite of his trouble and unhappiness in joint family.

In his family one of his cousin suffered from epilepsy. The patient's uncle also suffers from periodic mood changes since last 5 years.

The patient has been suffering from strange feelings since 10 years which is aggravated in recent years. He is also having occasional grand mal seizure since 9 years.

He experiences some of the classical signs of temporal lobe epilepsy like dreamy state, automatic behaviour, clouding of consciousness and disorders of memory. Other than these he possesses schizophrenic features like bizarre thought and ideas, blunting of affect, delusions and hallucinations, passivity phenomenon, depersonalisation, derealisation, belief in magical thinking and neologism. These bizarre ideas and constant brooding over his illness are responsible for impairment of his efficiency as a result of which he cannot concentrate over anything for a long time. Psychological tests reveal in him schizophrenic, paranoid and depressive features associated with anxiety.

General physical and neurological examination showed nothing abnormal. Repeated E.E.G. reveals paroxysmal slow waves all over the brain more prominent over Temporal lobe areas. All these in combination are suggestive of that this is probably a case of schizophrenic reaction on an epileptic diathesis. The cause of epilepsy is not found out by the routine investigations.

DIFFERENTIAL DIAGNOSIS

Chronic Obsessional Neurosis

Points for—

- (1) Persistent repetitive thoughts and ideas as evidenced by description of his symptoms

and writing of detailed notes about his subjective feelings.

- (2) In spite of his mental illness for long duration he is doing responsible work satisfactorily.

- (3) He has got insight into his own mental condition.

Points against—

- (1) He does not have any internal resistance to overcome the repetitive thoughts and ideas, on the other hand he derives pleasure in unrealistic phantasies and imaginations.

- (2) Florid delusions and hallucinations existent at present.

- (3) Though he is working at present but his constant brooding and preoccupation over his health are responsible for gradual impairment of his efficiency as evidenced by his lack of concentration and derealistic thinking.

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Hazards of Radiation for Mankind

BY A MEDICAL CORRESPONDENT

MAN has been exposed to ionizing radiations since the beginning of time — cosmic rays, radioactive elements of the environment, and radioisotopes within the human body itself. With the discovery of radium and X-rays at the turn of the century and the more recent advent of nuclear fission, the amount of this radiation had risen so much that it is now the subject of international concern.

In a report on the hazards of radiation to health and the necessary preventive measures that has been published by the World Health Organization, the authors argue that natural exposure, which includes many different kinds of radiations, may provide a useful guide in assessing the effects of man-made radiations from radioactive material produced in nuclear reactors and atomic explosions, medical X-ray equipment and other radiation sources.

The exposure of living tissue to ionizing radiations from any source whatever involves a transfer of energy which, if it is carried far enough, may have a destructive effect on cell growth and reproduction.

This is illustrated by radiotherapy in which cell destruction is used as a weapon against cancer—malignant growths often are more sensitive to such radiations than normal body tissues.

However, generally speaking, exposure to radiation cannot be considered to be beneficial. Biological changes take place, including genetic effects, induction of leukemia and other malignancies, and shortening of the life span.

The reason for this effect on the life span, like so many other things that happen in this newly-discovered world of science, is by no means clear. Some investigators have reported an increased life span in animals exposed to continuous irradiation at very low doses. Similar data on human beings is difficult to obtain. No one is in a position to say whether or not the constant low level natural radiation to which man is exposed is good or bad for him, for he has never been without it.

In "Ionizing Radiation and Health" the sources of ionizing radiations are closely scrutinized. The first is the natural radiation to which man has been exposed throughout his entire evolution.

NATURAL RADIATION

The quality of the components of natural radiation—cosmic radiation, the natural radioactive elements of the earth's crust, plants and air, and internal exposure from natural radioisotopes—varies considerably from place to place with latitude, altitude and environment, thus providing the scientists with excellent opportunities to compare their effects.

Cosmic radiation originates in outer space and thus is greater at high altitudes. The cosmic ray intensity at 3,000 metres is approximately three times that at sea level.

The variations in the *terrestrial radiation* are much greater. Acid igneous rocks carry higher concentrations than basalts: shales that contain organic material are more radioactive than rocks laid down by sedimentation: rocks with a high silicon content tend to contain more radioactive potassium, thorium and radium.

High exposure occurs in regions containing uranium and thorium deposits. Uranium is found in the brown coal deposits, petroleum beds and phosphate rocks of Florida, in the Congo, in Ontario and Saskatchewan in Canada, Fergana in the USSR, in Czechoslovakia, in South Africa and in other places.

Thorium-rich deposits have been found in the Rocky Mountains and the Carolinas of the USA, in the Kerala Region of India, the Espirito Santo region of Brazil and in Taiwan, among other places.

Internal radiation of the body mainly originates in the radioactive potassium which is a constant part of the body's potassium content, in a

carbon isotope that is present in all living biological material, and radium normally found in the skeleton.

The radioactive isotopes that enter the body with food, water and air, settle in different places: radium and radiothorium are usually taken up by the bones; the inhaled decay products of atmospheric radon and thoron concentrate in the lungs. Concentrations of radium and thorium in various foods differ enormously and are being investigated.

MODIFIED NATURAL EXPOSURE

Man's exposure to natural radiation can be modified by the house he lives in. Most building materials, while reducing external radiation, contain enough natural radioactive substances to more than compensate for the shielding effect of the building so that indoor exposure is often higher than outdoor: badly ventilated rooms may accumulate the radon and thoron contained in the air.

Again, on a ship at sea, radiation from the earth is absent and the dose may be about half the average on land. During aeroplane travel at extremely high altitudes, the cosmic ray content of the atmosphere is higher.

ARTIFICIAL RADIATION

Medical procedures — diagnostic and therapeutic — make a striking contribution to man's exposure, a fact that was brought out by the investigations of the United Nations Scientific Committee on the Effects of Atomic Radiation. The genetically significant dose from X-ray diagnosis ranges in different countries from 17 to 160 per cent of the average dose from natural radiation. The dose absorbed by other soft tissues may be of the same order. Exposure to X-rays has been studied since the beginning of the century and much is known about the subject. These studies contributed very substantially to the successful development of atomic energy, since the nature of the hazard was recognized and the basic protective measures necessary were known in advance.

Occupational exposure has been studied by the World Health Organization which convened an Expert Committee on Medical Supervision in Radiation Work in 1959. Most countries

(Continued on page 72)

follow the recommendations of the International Commission on Radiobiological Protection (ICRP) in this matter. The practical problem is to limit exposure to a "permissible dose" which is defined as the radiation dose involving a risk not unacceptable to the individual and to the population at large. The permissible dose for the individual is that which carries a negligible probability of somatic or genetic injuries.

In medicine and industry where radioactive materials are frequently used, most injuries are caused by lack of experience, lack of adequate instruction, and carelessness. The accident rate in atomic industries is relatively low although mistakes have occurred.

A number of *manufactured articles* used everyday are radioactive; the most common are watches with luminous dials that contain radioactive material and television receivers that give out soft X-rays. These can be screened off and most factories making television sets do so.

The ICRP recommends that fluoroscopy should not be used in fitting shoes, for example, except for medical reasons.

There are luminous paints on the market in some countries that contain radium: radioactive brushes to remove dust from films and phonograph records are common.

Radioactive waste is a potential hazard: it should be disposed of in a place where it cannot affect anybody. Public health authorities can help by coordinating radioactive waste disposal from industries, hospitals, etc.

Fallout is known to have contributed relatively small doses of radiation compared to the variations from place to place in natural radiation. Extremely sensitive devices exist that can measure the actual contamination of food and of human beings themselves. The height of an atomic explosion influences the way in which radioactive material is spread around the earth before being ultimately deposited on the ground. This distribution is greatly influenced by rainfall, and areas with much rainfall tend to have a higher fallout than nearby areas with little rain. In the vicinity of test sites unfortunate weather

MEDICAL NOTES & NEWS

ADVERTISING AND SELF-MEDICATION

PEOPLE are easy marks for quackery and the blandishments of advertisers of medicines and drugs for they know little about the structure and functioning of their bodies and yet are vitally interested in their own health and like taking things.

This is one of the main reasons why such advertising should be controlled, according to a survey of health legislation in pharmaceutical advertising published by the World Health Organization (WHO), which reviews the situation in some 20 countries, most of them in Europe and the Americas.

The dangers of self-medication are made clear. There is always the risk of choosing the wrong drug, as, for example, an irritant purgative instead of an anti-spasmodic; of taking an excessive dose or too small a dose; of side-effects or of allergic reactions; of interfering with other drugs or of increasing their effect. There is also the possibility that the body will get used to a drug so that it loses its efficiency or becomes a habit, as well as the risk of suppressing the symptoms of an illness that could be cured if treated in time.

CREATES DEMAND FOR MEDICINES

Another serious objection to pharmaceutical advertising is that it may create a pressing demand for a new remedy, sometimes even before doctors know about its existence, and before adequate test have been made and the side-effects upon human beings are known.

The medical profession is aware of the dangers. The New York Academy of Medicine has voiced the

opinion that the indications given in the advertising of tranquillizers were "frivolous", the hazards not stressed, and the claims for these remedies advertised in a extravagant and indiscriminate manner, without adequate warning about side-effects.

DANGERS FOR THE PUBLIC

The Pharmaceutical Society of Great Britain reported to the Ministry of Health in 1947 that pharmaceutical specialities were being advertised to the public with the grossest exaggeration and frequently in a fraudulent fashion; that advertising of certain medicaments had led to the public postponing seeking skilled advice, thereby frequently prejudicing reasonable success in treatment; that often advertising awoke in the public apprehension and distress regarding the risk of contracting a disease, or regarding the danger of an operation or premature old age or incurable illness; that testimonials as to the efficacy of medicaments lacked serious foundations; that advertising and publicity regarding certain complaints, such as asthma and rheumatism, for example, were frequently exaggerated; that advertising could directly or indirectly undermine the confidence of the public in medical practitioners; that advertisements recommending sexual tonics were especially open to criticism, and likewise the phraseology utilized in advertising copy, so that despite its apparently scientific nature it was meaningless and designed only to impress credulous and uneducated people; that the composition of certain preparations was often such as to defy analysis; and, finally, that the volume of advertising of proprietary medicines was out of all proportion to their true value to the community.

(Continued from page 71)

conditions can bring about dangerous fall out levels.

Although there is much to be learned about radiation hazards, more is known about their nature than is known of many other substances used in industry

and in everyday life, such as cleaning fluids, antibiotics and other new drugs, combustion fumes, etc. Moreover the great general interest in radiation has stimulated continuing international and national activity in studying its effects on health and necessary control measures.

ADVERTISING FOR THE PROFESSION

Advertising intended for the medical profession was no less open to question, the survey shows, both its accuracy and volume being frequently criticized by reputable bodies.

The standard of pharmaceutical advertising has improved, however, especially since the war, and particularly thanks to the passing of legislation. Both the International Pharmaceutical Federation and the International Pharmaceutical Industry Group of the countries of the European Economic Community have made efforts to enunciate principles which would protect the public.

Countries covered by the survey are: Argentina, Austria, Brazil, Canada, Colombia, Denmark, Dominican Republic, France, Germany (Federal Republic), Greece, India, Ireland, Italy, Japan, Luxembourg, Peru, Poland, Spain, Switzerland, United Kingdom, United States of America, Yugoslavia.

* * * * *

NEW CHEMICAL STYMIES BUGS BY STARVING THEM TO DEATH

Scientists have developed a new insecticide which doesn't kill the tiny creatures; it simply starves them to death.

Preliminary field investigations at the University of California indicate that once a bug is exposed to the new chemical, it just stops eating. According to Dr. Harry Lange, who conducted the California research, the chemical apparently interferes with the insect's metabolism causing it to "starve to death believing its stomach is full."

The California group found that the new compound gave better control than conventional insecticides against loopers, a caterpillar-like creature which attacks lettuce plants.

This revolutionary concept in insect control was developed by entomologists at Cyanamid International's central research department. The compound,

4' (dimethyltriazino) acetanilide, or CL 24055 to the scientists, has been under scrutiny for about three years.

The primary significance of the Cyanamid compound is that it is non-toxic to human beings and wild life and leaves no potentially harmful residue on fruits or vegetables. Further, since the insect needs to eat only a small amount of the compound to be affected, there is hope that it will not induce resistance among future generations of the crop destroyers.

The Cyanamid researchers emphasized that CL 24055 must still be termed "experimental" and indicated that it is doubtful that it will ever become a commercial product. However, it does pave the way for further research on compounds which exhibit similar activity.

The original observation of the compound's unique properties was made during the course of Cyanamid's insecticide screening program at its Stamford, Connecticut, research laboratories. This was followed by intensive laboratory evaluation. When the compound proved promising, it was released to several agricultural experimental stations for field testing in 1959. Then in 1960 more extensive field trials were conducted with the material.

The Cyanamid entomologists report that several other compounds which show this type of activity are now being evaluated in their laboratories. However, considerable laboratory and field research remains to be done before one of these compounds will be commercially available.

A Cyanamid spokesman indicated that both company and government researchers are hopeful that eventually commercial control of insects will be possible through this unique approach.

* * * * *

BERLIN CLINIC REPORTS SUCCESS WITH MORE POTENT NEW ANTIBIOTIC

A new broad-spectrum antibiotic, already proven effective against more than 200 disease-causing bacteria

in laboratories around the world, established its special efficacy in treating illnesses of the mouth and jaw at the Rudolf-Virchow Hospital.

The drug, Ledermycin demethylchlortetracycline, developed by Cyanamid International's Lederle Laboratories, was administered to 109 patients in both general and surgical practice. It achieved a significant rate of cure—95 per cent—even though only patients with severe and chronic conditions were used in the study.

Results of the investigations are reported by Dr. H. Harnisch in the German medical journal, *Aerztliche Praxis*. In addition to citing Ledermycin's "considerable advantages over the tetracyclines used to date," the report states that the drug was well tolerated by all the patients and evoked no adverse side effects in any of them.

Ledermycin was prescribed for both hospitalised and ambulatory cases treated at the Berlin clinic. They included abscesses and severe infections of the gums, salivary gland inflammations, osteomyelitis and furuncles.

A broad-spectrum antibiotic was clearly indicated, Dr. Harnisch notes, in the cases of chronic gum infection accompanied by fever. Because of its effectiveness at lower dosages and its prolonged retention in the system, Ledermycin was chosen "as the first long-acting tetracycline."

Three capsules of Ledermycin, containing a total of 450 milligrams, sufficed where daily dosages of other tetracycline antibiotics would have totaled 1000 mg., or more than twice as much, according to the report. "Longer intervals between doses," writes Dr. Harnisch, made possible "administration every 12 hours instead of every six, which means uninterrupted sleep and better ambulatory medication." Furthermore, "greater quantitative absorption" of Ledermycin provided "protection of the gastrointestinal tract," because a smaller amount of the drug was excreted.

Dr. Harnisch points out that the six patients listed as showing "no improvement" had to discontinue taking the drug during the first day of treatment, because oral swelling from their infections made it impossible for them to swallow more capsules. Thus they did not receive the benefits of a full course of therapy.

INTESTINAL DISEASES

The committee was informed that a WHO diarrhoeal advisory team was proposed to be assigned to Ceylon in 1962. The team will help assess the nature and extent of this problem and to study the manner of spread of the enteric group of diseases.

Without exact knowledge of the epidemiology of these diseases, it was stated, it was difficult to formulate anything more than general recommendations for the improvement of health education, water supplies and sanitation. WHO had, therefore, been assisting Member Countries in the development of public health laboratory services and epidemiological and health statistical units. The WHO Advisory Committee on Medical Research had strongly supported a proposal to establish a scientific group on cholera research.

The committee was also told that the Indian Council of Medical Research proposed to organize two pilot studies, one in the north and the other in the south

of India, to obtain detailed knowledge on the prevalence of diarrhoeal and other associated diseases. In each study a population group of about 500 families will be followed up for a period of 12 months.

OUTLOOK ON FILARIASIS

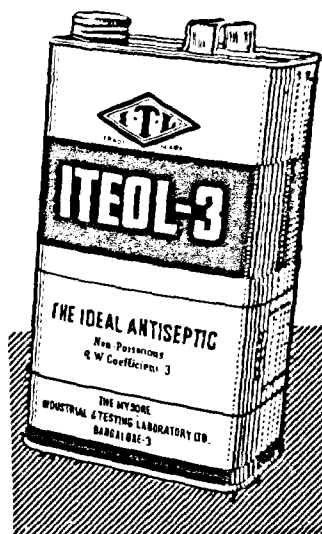
In regard to filariasis control, it was stated that "the present studies or knowledge does not justify any target of eradication". WHO was, however, giving close attention to the subject. In the South East Asia Region, a consultant had visited Burma and Ceylon for establishing pilot studies in the near future.

Under WHO's medical research programme continuing studies on filariasis were proposed and preliminary planning had started on a study of the influence of malaria eradication on other insect-borne diseases. It was felt that anti-malaria operations could not be expected to benefit the filariasis programme.

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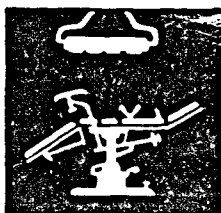
Manufactured by:
THE MYSORE INDUSTRIAL & TESTING LABORATORY LTD.
MALLESWARAM, BANGALORE - 3

Sales Depot:
35/37, THAMBUCHETTY STREET, MADRAS-1
71/4, Arcot Srinivasachar Street, BANGALORE-2

SELLING AGENTS:

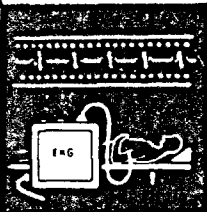
M/s: KHATAU VALABHDAS & Co.
Indian Globe Chambers, Fort St., BOMBAY-1
M/s: KARNATAK & DECCAN AGENCIES,
Hublikar Buildings, Koppikar St., HUBLI

M/s: DECCAN DRUG AGENCY
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Equipment and outfits for Operation Rooms

Operation tables, Surgery lamps
Narcotizers and Respirators
Suction and Sterilizer equipment



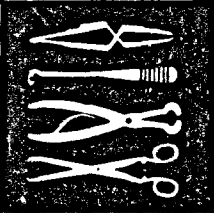
Electro-medical and Electronic Apparatus

Cardiac and cerebral examination apparatus
Stimulators and therapeutic apparatus
Audition improvers and accessories

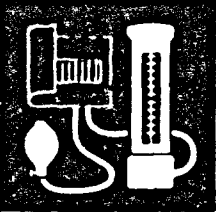


Dental Equipment, Instruments and Material

Operating units for dental surgeries, dentistry chairs
Ambulant dental surgeries
Dental instruments and supplies



Surgical and Medical Hand-Instruments



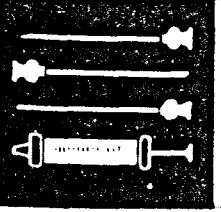
Diagnostic and Therapeutic Apparatus and Instruments

Blood-pressure and muscle activity measuring
and recording devices
Apparatus for testing the respiratory function
and its relations
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