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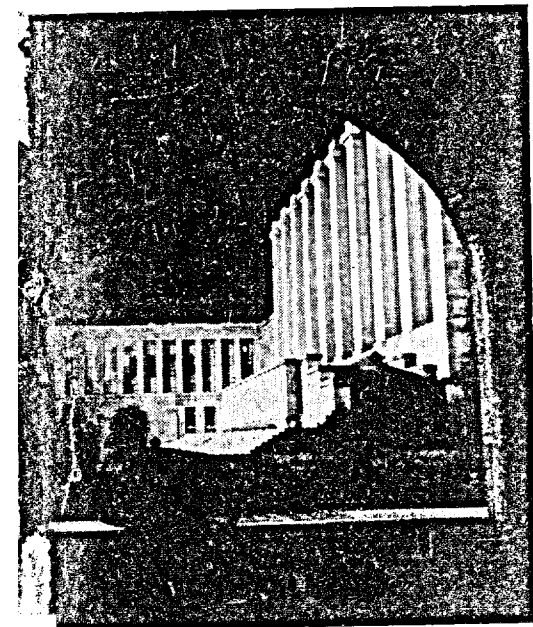
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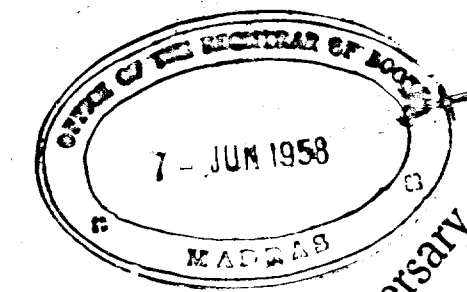
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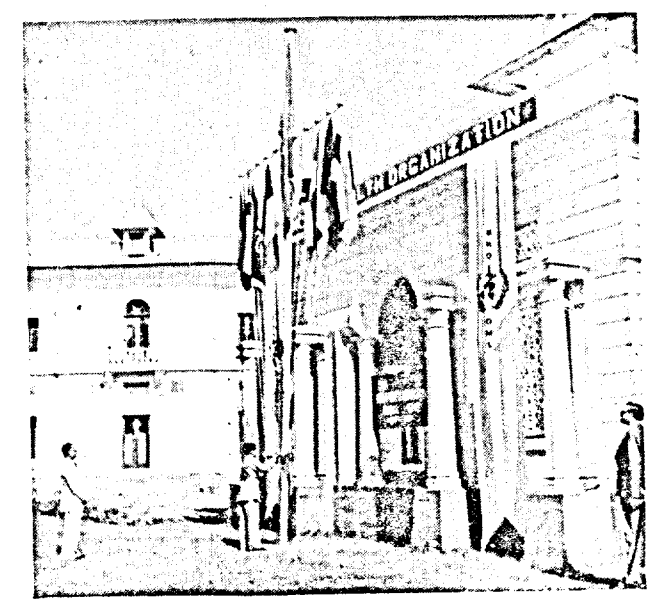


A view of the Palais des Nations, W H O Headquarters, Geneva, Switzerland.



World Health Organization's Tenth Anniversary
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BOOK REVIEW

PARTICULATE CLOUDS, DUSTS, SMOKES AND DUSTS

By

H. L. GREEN, M. A. (Cantab), F. Inst. P.

and

W. R. LANE, B. SC. (Birm.), F. Inst. P.

SPON'S General and Industrial Chemistry Series
(Cloth bound, Pp. xviii plus 426 plus 8 plates)

The authors have made profound studies and researches on the subjects; spared no mathematical formulæ in presenting problems and solutions; and also made it possible for an ordinary practitioner of Public Health and Environmental Hygiene to understand the various aspects by even a cursory reading of the book omitting the mathematics.

To attempt to review this book in a brief compass is to do it injustice. Even the list of contents is enough to excite the interest of the scientist reader. To name a few at random—Nature of particles in Dusts, smokes and mists; production of clouds; condensation; Optical properties of clouds; coagulation of particles; accoustics; filtration; electrified filters; electrostatic and thermal precipitation; dust from Chimney stacks; health hazards; radioactive aerosols; micro-biological aerosols; respiratory retention; dissipation of smogs; ice on aircraft; therapeutic uses of particulate clouds, pest control in agriculture, etc. etc.; not, omitting smoke screens and gas warfare!!

This book may be recommended to all scientific libraries and to those engaged in Public Health and Environmental Hygiene for consultation in their solution and administrative problems.

Printed by T. S. Gopal Row at M. K. Press, Tanjore and Published by B. S. Amruta, B. A. for "SURGICAL & MEDICAL NEWS" "Dilip Sadan" Jayprakashnagar, Goregaon, BOMBAY
Managing Editor: Dr. S. N. Dhananjay, M.B., B.S., C.I.H.

SURGICAL & MEDICAL NEWS

Telegrams: "Pulsewave"—"Goregaon"

Telephone: 84311

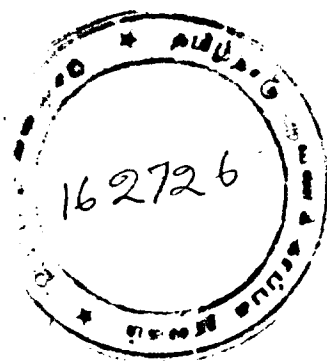
Volume 4 No. 3 Price Re. 1/- (India) Rs.2/- (Foreign) April 1958

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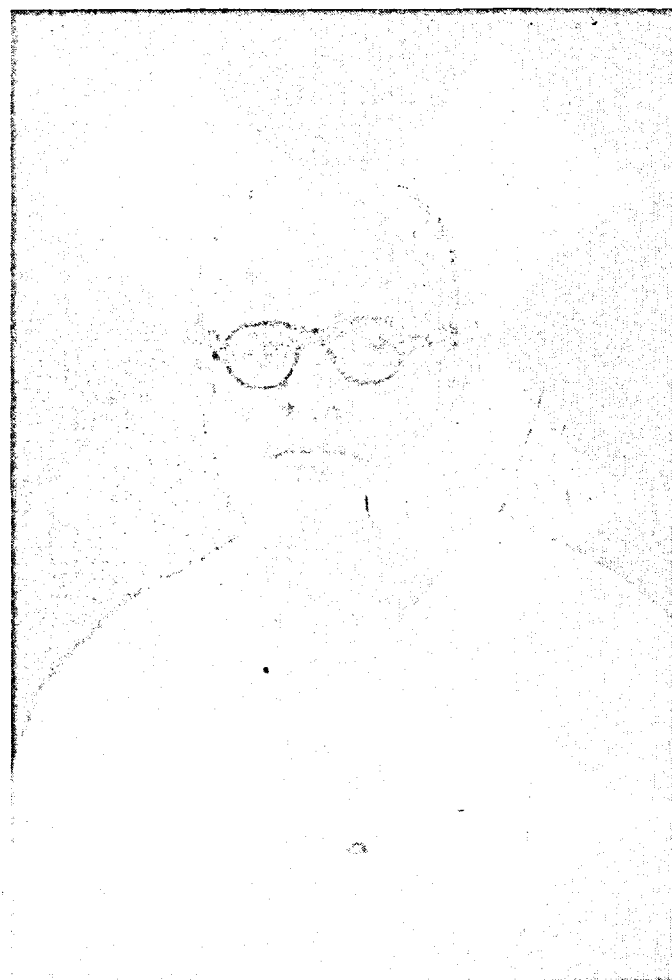
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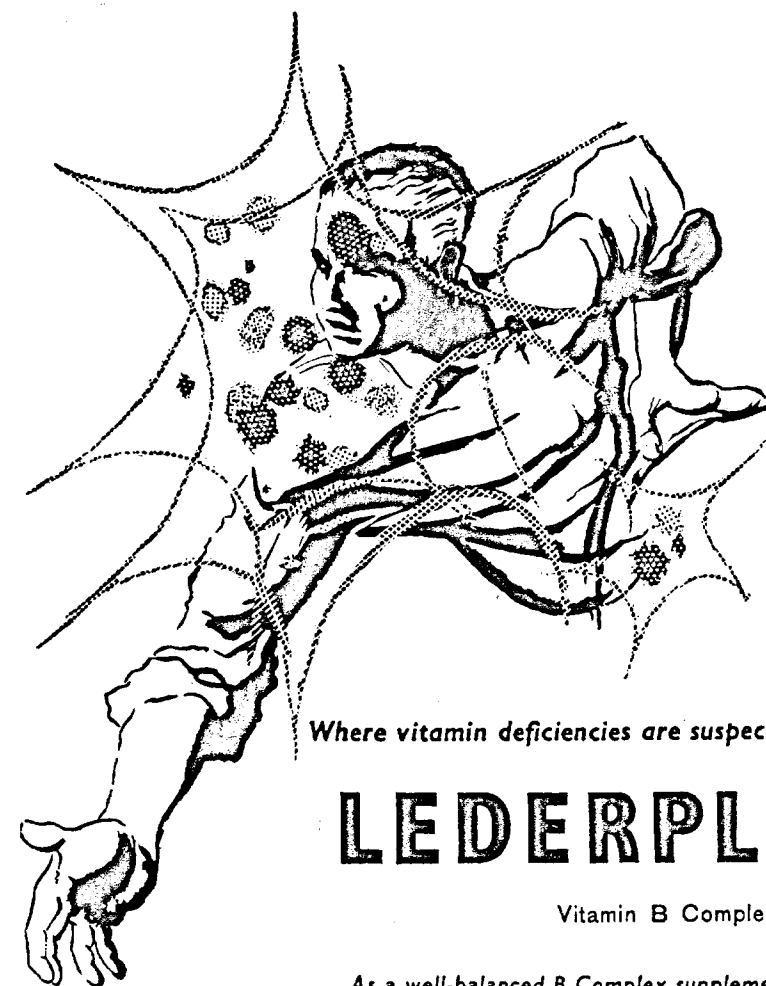
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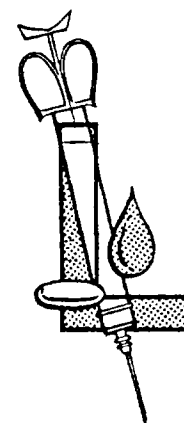
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Observation in Medicine

"YOU will find an excellent and authoritative account of this disease in John Smith's book on Medicine" said the learned physician at a big hospital to his students on a teaching round. The disease referred to was a common tropical disease which almost all practitioners of medicine have to encounter from day to day in tropical practice. In fact this particular teacher probably had seen in his professional lifetime several thousands of cases of such a disease. Although he had seen so much of it and had himself treated it, he had still to refer to John Smith's book. The extraordinary thing was that John Smith had only seen twenty to thirty cases of this disease at a sea port hospital in a Continental island remote from all tropical regions. Yet, how did his work become acknowledged and recognized, while the physician in the Indian hospital who had seen so much, had very little in the way of authoritative personal views to communicate either about the ætiology or the management of this disease?

The answer is quite simple. While there are outstanding Indian physicians who have made significant contributions to our knowledge of disease they have been exceptions and the generalization which has been made above is not untrue. The reason why we do not seem to make much headway or produce original work, lies mainly in our faulty approach to the subject. This approach is governed by the basic medical education which we have received and by our attitude to the subject.

As students we have learned facts most of which have been discovered by other people and written in their books. These facts we have been inclined to accept as absolute. Few of us dare to challenge them; few of us care to make a scientific observation or try to learn from our own experience. Whenever a disease pattern does not fit into the one which has already been described in the book, we are apt to think that we are wrong. Even when we find something which is definitely at variance from what has already been described by others, we do not care to record them or to assemble such material. Original work is based largely on observations. What we observe we should record. To be able to record comprehensively we must read widely. That requires time. Most of our professional life is devoted more to private practice, mainly to sustain ourselves. Even those of us who work on research projects stick to it only because there is nothing better to do immediately. Those of us, who have vested in us, the responsibility of disseminating knowledge, simply obtain the knowledge from what others have said or written and passively distribute it to those who have come to learn from us. This then is the crux of the matter. As Karl Pearson has once said "The true aim of the teacher should be to impart an appreciation of the method, rather than a knowledge of facts for method is remembered when facts have long been forgotten."

If we have to make our own individual contributions to advance the art and science of medicine, we must become observant. Observation is a faculty which has to be

cultivated. Some people may be more observant than others, but to be able to observe in medicine one has to become a trained observer. We concentrate on acquiring detailed factual knowledge and to accept most things from books as truths. We find most students are only keen to read the text books or their lecture notes. Rarely do we find students being encouraged to read the original papers or to find out things for themselves. Our success appears to depend largely on how much we can reproduce from material learned by heart. There is no doubt that as undergraduate students we have to acquire a foundation of factual knowledge. Yet the emphasis of all teaching at all time should be to develop a desire in the student to find out and to enable him to discriminate. The defects have been well summarized by the following comment by the Planning Committee of the Royal College of Physicians.

"We are agreed that, quite apart from lack of character and ability that may be avoided by improved recruitment and selection, the average medical graduate has defects which are to be attributed chiefly to the manner of his training. He tends to lack curiosity and initiative; his powers of observation are relatively undeveloped; his ability to arrange and interpret facts is poor; he lacks precision in the use of words. In short, his training, however satisfactory it may have been in the technical sense, has been unsatisfactory as an education. This is a matter of very great importance. The average student leaves his medical school at about the age of 25; during the subsequent thirty or so years of professional life, his ability to learn from his own experience and that of others, and to keep abreast of the stream of advancing medical knowledge, depends entirely on those qualities in which his training has left him defective."

It is only training on sound principles which can stand a student in good stead when he takes to post-graduate study. We find unfortunately that even among post-graduates the object of study is merely to acquire some diploma or degree, a tool for a good livelihood, rather than to pursue knowledge purely for its sake. There is little inclination to find out things or to make independent observations.

We should realize that post-graduate study is a period of time when we should have risen above the need to memorize facts, only to be recounted to some bored examiner. Rather post-graduate study should be an adventure—an adventure in which the method of pursuing knowledge and the basic quota of facts learnt in the under-graduate course are put to practical use and built upon.

Then we too will be able to make substantial contributions instead of merely depending on John Smith's thorough observations made on a very limited number of cases when we have no dearth at all of clinical material in our land. It is only in this manner that we can improve and advance the art and science of medicine in India.

Benign Cystic Teratoma of the Ovary Complicating Pregnancy

BY

DR. E. V. KALYANI, M.D.,

Hony. Obstetrician & Gynaecologist,

and

DR. VISHNU SARMA, M.A., (Cantab), M.B., B.Chir., M.R.C.S. (Eng.), L.R.C.P. (Lond.),

Civil Assistant Surgeon, The Govt. Women and Children's Hospital, Egmore, Madras.

OVARIAN tumours are not rare. Sometimes they are found in association with pregnancy. The incidence is in the region of 1 in 1400 (Browne 1955). The great majority of these tumours are simple or multilocular cysts. However, quite an appreciable proportion of these tumours are benign cystic teratomas. The majority of these tumours neither reach a large size nor give rise to symptoms unless they undergo complications such as torsion of the pedicle, rupture, suppuration, necrosis or incarceration. When any of these complications occur they cause abdominal symptoms and bring themselves to the notice the obstetrician or gynaecologist. There are certain features peculiar to the benign cystic teratoma. Some of these tumours contain teeth or other structures demonstrable on radiographs. While rupture of any of the ovarian tumours and the subsequent spill of their contents into the peritoneal cavity is a serious enough complication, it is more so in the case of the benign cystic teratoma. The sebaceous contents cause extreme peritoneal irritation. A very severe and perhaps even fatal peritonitis may result. Ovarian tumours are best removed. The removal of such tumours during early pregnancy is attended by a risk of precipitating abortion. Therefore these tumours are best removed during the middle weeks of pregnancy when the risk of precipitating abortion is considerably reduced. Some of the aspects which have already been discussed are well illustrated by the following case.

CASE REPORT

A 42-year-old patient pregnant for the seventh time reported to hospital complaining of pain in the right side of the abdomen for ten days. The patient described the pain as being intermittent and of a burning character. It was localized in the right iliac fossa. She had no vomiting or other symptoms associated with the pain.

She began menstruating at the age of twelve. Her periods came regularly every month and lasted for about 7 days. The flow was maximal during the first five days. The loss was moderate. There was no abnormality either in the colour or consistency of the blood. There were no clots. She had no intermenstrual bleeding or pain. Her last period had occurred eight weeks ago and she thought she might be pregnant.

She was married at the age of 27 years. There was nothing relevant in her marital or obstetric history. She had borne six children. All these had been full term natural deliveries. She had never aborted. Her last child was two years old. There was nothing relevant in the family or social history and she had had no serious medical or surgical ailments in the past.

On examination she was a healthy well built person. Nothing abnormal could be detected on general examination. The only sign on abdominal examination was some slight tenderness in the right iliac fossa. There were no palpable masses. Pelvic examination showed the vagina to be discoloured. The cervix pointed downwards and felt soft to the touch. The uterus was in mid position, somewhat soft and slightly bulky corresponding in size to eight weeks' pregnancy. All these signs were suggestive of a pregnancy being present. The left fornix was normal. In the right fornix a spherical freely mobile relatively heavy tumour could be felt. It was lying a little to the front of the uterus on the right side. A cystic tumour arising from the right ovary was diagnosed. A male frog test was positive. The physical nature of the swelling was in favour of a dermoid. So a plain X-ray was taken of the abdomen. The X-ray showed a discrete opacity just below and to the right of the sacral promontory. It was shaped like a tooth (Fig. 1). A certain diagnosis of a benign



Fig. 1. (Courtesy: Radiology Department, The Govt. Women & Children's Hospital, Egmore, Madras)
A plain X-ray (antero-posterior view) showing the typical calcification of a benign cystic teratoma.

cystic teratoma co-existing with pregnancy was made. The patient was advised to have it removed by operation. She went home to make the necessary personal and domestic arrangements and returned to have the operation about eight weeks later. When re-examined at this time the physical findings were the same except that the uterus had enlarged in size. The tumour was still present. A laparotomy was performed under spinal anaesthesia. The uterus was found to be about fourteen weeks in size and on the



Fig. 2. (Courtesy: The Govt. Women and Children's Hospital, Egmore, Madras.)

This photograph taken during the operation shows the tumour arising from the right ovary. The enlarged uterus is also towards one side. The surgeon's finger is pointing at the round ligament on the right side.

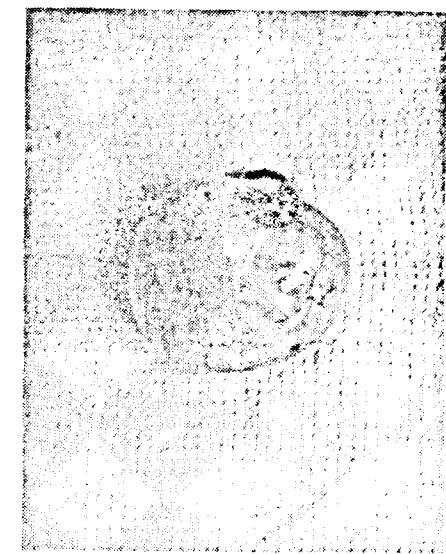


Fig. 3. (Courtesy: The Govt. Women and Children's Hospital, Egmore, Madras)
The external appearance of the tumour after its removal is shown. The tumour was about 2½" in diameter.

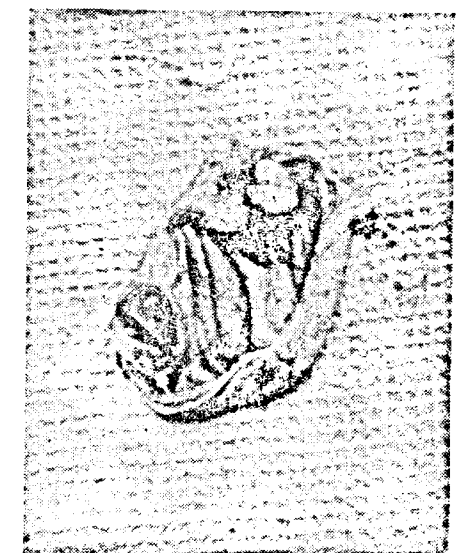


Fig. 4. (Courtesy: The Govt. Women and Children's Hospital, Egmore, Madras.)

This photograph shows the tumour after it was sectioned and emptied of its sebaceous contents. In its wall on the left side is seen the elevated mammilla. Two denticles are seen springing from the lower part of the mammilla. On the right side and at the top, embedded in the wall of the tumour is seen a large molar tooth with multiple cusps.

right side and slightly to the front was a spherical cystic tumour about 2½" in diameter arising from the right ovary (Fig. 2). The tumour had not undergone any complications such as torsion or rupture. A

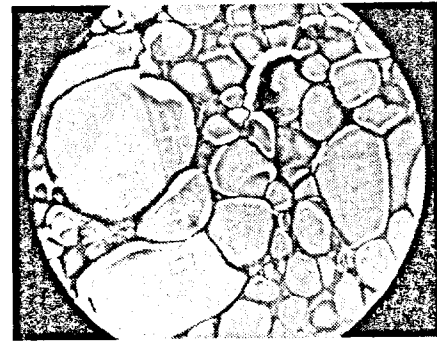


Fig. 5. (Courtesy: The Pathology Department, The Govt. Women and Children's Hospital, Egmore, Madras)

This histo-photograph demonstrates the thyroid tissue which was present in the mammila. There are large acini distended with colloid. All the photographs were taken by one of the authors. (V.S.)

right oophorectomy was performed and the abdomen was closed in the usual way. A number of blood vessels could be seen on the surface of the tumour (Fig. 3). When the tumour was sectioned a white thick sebaceous fluid escaped. A raised elevation (Mammila) was found on one side of the tumour from which sprung two small denticles. A well formed tooth with molar cusps was present in one edge of the tumour (Fig. 4). When sectioned the mammila seemed to be composed of a soft homogeneous tissue the true nature of which could not be made out on inspection. Subsequent histological examination showed that this portion of the tumour contained thyroid tissue (struma) (Fig. 5). The patient made an uneventful recovery.

COMMENT

A case of benign cystic teratoma of the ovary associated with pregnancy is presented and some aspects of the diagnosis and treatment are illustrated. All ovarian tumours are best removed. It is particularly imperative in the case of teratomas because they appear to be more prone to undergo torsion. Surgical intervention during the first twelve weeks is attended by a risk of abortion. Surgical

Would you marry someone you had never met? To-day, changing habits notwithstanding, they're still doing it in many parts of China. In old-line Chinese families, the bride and groom do not meet until the very night of the wedding. Marriage, they say, is something like a pot of water. It may be cold to start with... but put it on a hot stove and the fire will warm it up. But start with boiling water, and likely as not it will eventually cool off.

removal is best carried out after the 12th week and before the 24th week. Benign cystic teratomas have a tendency to remain within the confines of the true pelvis and may therefore obstruct labour. If a tumour is in a position to cause dystocia the tumour may be removed when Cæsarian section is performed at term. If the patient is allowed to deliver vaginally it is desirable to remove the tumour very early in the puerperium because of the high incidence of torsion, rupture or infection, at this time.

ACKNOWLEDGMENT

We wish to acknowledge our gratitude to Dr. Mrs. S. Abraham, M. D., Professor of Obstetrics and Gynaecology, Madras University, and Superintendent, The Govt. Women and Children's Hospital, Egmore, Madras, for her generous consent to our making use of clinical material from the hospital.

REFERENCES

- (1) Browne F. J., Antenatal & Postnatal Care. Churchill, London, 1954.
- (2) Chassar Moir, J., Munro Kerr's Operative Obstetrics, Bailliere Tindall and Cox, London, 1956.
- (3) Howkins J., Shaw's Text Book of Gynaecology, Churchill, London, 1956.
- (4) Klein, Joseph, Pregnancy complicated by teratoma of the ovary, Obstetrics and Gynaecology, Vol. 3. No. 1 Jan. 1954.
- (5) Peterson W. F., Prevost E. C., Edmunds F. T., Hundley J. M. and Morris K., Benign cystic teratomas of the ovary; A Clinico-statistical study of 1,007 cases with a Review of the Literature., Amer. J., Obst. & Gynec., 1955, 70: 368.
- (6) Willis R. A. Teratomas, Atlas of tumour pathology, Armed Forces Institute of Pathology, 1951.

Radioactive Isotopes in Diagnosis of Brain Tumours

BY DR. K. BADMAEV, M.Sc. Medicine.

THE question of early and precise diagnosis of brain tumours is especially important for neuropathologists and neurosurgeons. The tendency of finding the most accurate and the least traumatic methods brought about utilization of achievements of modern nuclear physics and radioelectronics. The, so called, indicator method of diagnosis with the employment of radioactive isotopes was created.

The method of labelled atoms gains more and more practical importance. The location of a tumour may be determined with the aid of isotopes of iodine, phosphorus and certain others without such unsafe and complicated methods, as pneumoencephalography or angiography connected with introduction of contrast substances or air into the cranial cavity. Accumulating predelectively in the tumour zone, radioactive isotope I^{131} , for instance, creates a focus of gamma-radiation. One may judge of the size and site of the tumour by the focus and direction of the gamma-radiation.

The indicator method of diagnosis finds wide utilization in neurosurgery and neuropathology because of its simplicity, painlessness and high degree of accuracy.

Investigations were carried out on patients by means of a scintillation counter of original construction (gamma encephalograph) in the oncological section of the A. L. Polenov Neurosurgical Institute in Leningrad, under the directorship of Prof. V. N. Shamov, Member of the USSR Academy of Medical Sciences. This apparatus consists of a multiple-block radio-electronic device with a radio feeler (one or two, depending upon the method of investigation), a counting device, power pack and stabilization unit, support carriage and recording potentiometer for automatic recording on a chart.

300mC of I^{131} were given to the patient following preliminary 4 days block of thyroid gland by Lugol solution. In one to two hours after the introduction of the isotope its distribution in the brain tissues was studied by examination of the surface of the patient's

head in 30 indicated points (15 points on each side, symmetrically).

The analysis of results of radiometric examination of 100 patients with brain tumours, verified both during the operation and at autopsy, convincingly proves that the accuracy of diagnosis depends mostly on two factors—accumulation of the isotope in the tumour and the depth of the latter. The first depends on the blood supply of the tumour which is determined by its histological structure. Thus, meningiomas with convexital location are most favourable for isotopic method of examination due to their well developed vascular network and surface localization. Brain gliomas, located on the surface, are also easily approached and give correct diagnosis in about 97 per cent of cases. The nearer to the surface the tumour is located and the richer its blood supply—the easier it is to reveal it. On the contrary, if it is deeply located or has a poorly developed blood vascular system—conditions are created in the tumour zone which are unfavourable for its visualization. Difficulties in isotopodiagnosis of such pathological processes, as in basal meningioma, gliomas with poor blood supply, tumours of the posterior cranial fossa, hypophysis or brain ventricles may be explained by this.

The accuracy in technique of isotopodiagnosis may be attained by two methods, i.e. by selection of tagged compounds which concentrate mostly in the tumour zone, or by increase of the sensitivity of the counters.

The successful solution of the problem of finding labelled compounds, providing more complete and selective concentration of radioiodine in the tumour tissue, depends to a great extent on obtaining such anti-tumour serum, the antibodies of which have a predelective localization in the tumour. Such serum would become a basis for production of a compound, labelled by I^{131} and liberated from non-organ-specific antibodies and, consequently, without side-effects.

There are rather clear prospects in the field of

improvement of the quality of isotopodiagnosis by increasing the sensitivity of the counters. We are talking about the necessity of application of such improvements as gamma spectrometry, focussed collimation, the "count of coincidences", scanning devices and certain others. Thus, utilization of gamma spectrometry enables to make prominent the basic line of the spectrum of I^{131} radiation with simultaneous exclusion of diffuse radiation, which greatly decreases the obscuring background radiation. The line is made distinct through employment of the amplitude analyzer and of spectrometric photomultipliers.

The second way of improvement of gamma-encephalometry consists in application of the method of focussed collimation. The fact is, that in the usual collimation gamma-radiation is registered from a comparatively large area of the brain. Due to that the examiner receives a rather hazy picture of distribution of radioactivity. On the other hand, in employment of focussed collimation, radiation is detected in the form of a directed bundle of rays with maximal limitation. Thus, the so-called "harmful volume of tissues" around the tumour which results in the appearance of the background

which obscures the radiation coming from the tumour, is decreased.

This gives an opportunity to reveal sufficiently small foci of accumulated radioactivity, i. e. provides the possibility of diagnosing small tumours located in the deepest portions of the brain.

The third way of improvement consists in employment of the method of "counting coincidences". It is based on counting the gamma quanti in positronic annihilation of radioactive arsenic isotope (As^{74}). It provides for the use of weakly collimated counter of lightened construction with high resolving power (the, so called, positronic analyzer.)

Finally, the scanning devices which are the automatic mechanisms allow to obtain a diagram of accumulation of radioactivity in the form of scanned image on the screen or a chart.

The problem of utilization of atomic energy for peaceful purposes which confronts Soviet scientists will likewise find successful solution in the early and precise diagnosis of malignant tumours.

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By DR. CH. KRISHNAMURTY,

7/604, Maharanipet, Visakhapatnam-2 (Andhra)

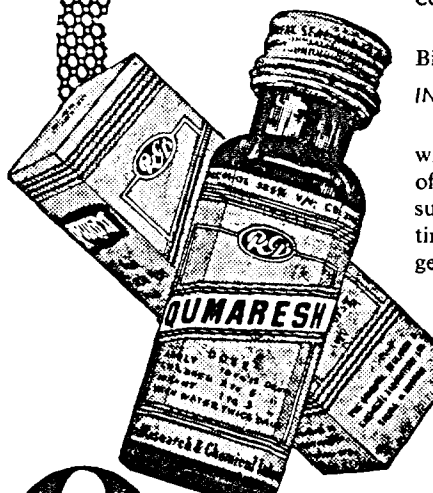
SIXTY years ago Peifer discovered the bacillus of *H. influenza*. Till 1933 when a virus was implicated, Influenza was thought to be due to *H. Influenza* bacillus. In the recent epidemic of 1957, which is still continuing in 1958, it first started in the Far East in Hong Kong, Singapore and Japan and later spread to India and other European countries like Russia, Great Britain, Australia, Africa and others. The present epidemic is regarded as viral in origin and Asiatic virus A, B or C are the types, virus A predominating. Although two epidemics assuming pandemic proportions appeared in 1918 and 1957, influenza was prevalent in the 40 years in between, though not in an epidemic form. It used to appear in waves twice or thrice a year during the summer months and in winter. The essential difference between the 1918 epidemic and the 1957 one, is that complications and mortality were greater in 1918. The bacillus or the virus was apparently lying latent in carriers during the interim, flaring up during favourable conditions or fresh virus is imported from epidemic areas as had occurred in April 1957 through S. S. Rajula from Singapore to Madras. Experience of the past 150 years suggests, that a pandemic of Influenza was fully due since an interval of 40 years had elapsed. The first wave of influenza which appeared in early summer of 1918, was quite mild, its only alarming feature was its remarkable infectivity, but the second wave in the winter was grim and formidable. A pandemic is due to a virus and the virus opens up the bronchial tree to its attack. The high attack rate, rapid spread, varied clinical picture, low percentage of complications and tendency for relapses in some people were more characteristic in the present epidemic. The bacterial invaders seemed to differ in different countries and in different individuals. In the epidemic of 1918, catarrhal symptoms and signs were more predominant. Almost every case started with coryza, sore throat, fever, bodily pains and headache. Conjunctival injection was not very common. Frequent sweating, great prostration and slow pulse, disproportionate to the temperature were common features in the 1918 epidemic. In the epidemic of 1957 also, profuse sweating with a high temperature and severe

prostration were commonly noticed. The temperature in uncomplicated cases treated early with strict rest and liquid diet used to come down in 48 hours at the earliest or on odd days, on 5th, 7th or 9th day. Persistent unproductive hacking cough was a common feature for a week after the fever and marked prostration was the rule for nearly a month after. Bronchitis, Pneumonia or meningitis were the common serious complications which accounted for mortality and no antibiotics were discovered by 1918. Diaphoretics with salicylates and A.P.C. powders was the rule, the complications and the sequela being treated symptomatically. Intravenous Iodine or Hexamine was used for the complications of the lungs and meninges. The age and the sex incidence was almost the same as in the present epidemic as reported by many doctors, 0 to 20 years 89%, 21—30 years, 48%, 31—40 years 22%, and 11% thereafter. Pronounced palpable and conjunctival injection, and enlargement of posterior cervical glands were more common in 1957. The average duration of the fever was three days and relapses were frequent. Coryza was not common but sore throat was more severe and persistent. Gastro-intestinal symptoms were reported in the early stages of the present epidemic in Great Britain. Epistaxis was common in the 1957 epidemic in the west. In fulminating cases complicated with Pneumonia, the mortality was almost cent per cent and the organism responsible was *Staphylococcus aureus* in addition to *H. influenza* and pneumococcus. Aspirin, Codopyrin, Salicylates and diaphorics and sulphanilamide compounds are the rule for treatment now. Pencillin is also given as a routine to prevent complications and satisfy the patient. It was often found that Pencillin by itself is not so effective as combined with Streptomycin. If Pencillin and Streptomycin are not effective, Chloromycetin or Tetracycline are better and the former is preferred to the latter. In all fulminating cases with intense toxæmia and pulmonary complications, Pencillin and Streptomycin are not quite effective as the *Staphylococcus aureus*, the main cause of the above, is not influenced by them. The resistant *Staphylococcus aureus* yields to Erythromycin or Novobiocin. A combination of

Tetracycline and Oleandomycin under the name of Sigmamycin is put up by Pfizer and Co, which fights against both H. influenza and the Staphylococci at one stroke. Combination of Chloromycetin and Streptomycin has a synergistic effect and is also found effective for Staphylococcal infections following Influenza-Ambrysinth is of this nature. Cortisone or Predenisolone is also found effective in severely ill patients with extensive pulmonary involvement and toxicity. Erythromycin is found equally effective. It is believed that Cortisone is useful only in peripheral circulatory failure and in cases of complicated influenza, there is toxic myocarditis and some question its use. Oxygen inhalations, supportive therapy with I. V. glucose, are necessary according to indications. 'Acute staphylococcal tracheobronchitis with Broncho-pneumonia may complicate Influenza, when the patient himself or somebody in the house has farunculosis. This may lead to death in 1 or 2 days and Pencillin treatment should be given for patients suspected to carry Staphylococci. Broad

spectrum antibiotics for Influenza patients who have chronic respiratory infections, or are in contact with bronchitis, or for, those with Diabetes or heart failure, for pregnant women and for patients over 60 years are recommended. Patients with farunculosis should be particularly careful if they get an attack of Influenza during an epidemic.'

Prophylaxis: Face masks, keeping up ones resistance at a high level, mandell's throat paint twice a day, antiseptic gargles and douching nostrils with weak iodine solution are useful. Vaccines are available on a limited scale and are generally not of much use. One attack does not confer immunity against other attacks, for the antigenically different forms of Influenza virus are continually developing, against which the population has little immunity and development of a completely satisfactory vaccine is hampered, because of the frequent antigenic variations of the virus and probably also due to the prohibitive cost.



COMPOSITION:
Audrographis Paniculata, Hygrophila Spinosa, Luffa Bindal, Ptychotis and other cholagogues and carminatives.

INDICATIONS:
Infantile liver with constipation; biliary obstruction with dropsy; tropical congestion of liver; early stages of cirrhosis of liver; intestinal troubles during dentition; summer diarrhoea; postnatal anorexia with gastro intestinal irritation and diarrhoea; anasarca; jaundice, and general atonic condition of the liver and stomach.

DOSES:

Adults	10 to 15 drops
Children	2 to 5 "
Infants	1 to 3 "

with water twice daily, before or after meals, or as directed by physician.

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The Ways of development of Soviet Medical Science

BY PROFESSOR A. BAKULEV

President of the USSR's Academy of Medical Sciences.

EVERY year modern medical science penetrates deeper into the secrets of the human organism and acquires new knowledge of the concealed functions of its organs and systems. Medical science is gradually developing new methods of controlling these functions and discovering the ties and material laws that lead to the comprehension of the human organism as a whole, in indissoluble connection with its environment.

Thanks to the progress of medical science and of the public health service of the USSR, we have been able to liquidate the most dangerous infections and the forms of typhus caused by parasites. We have succeeded in almost completely conquering malaria, greatly reducing the number of cases of typhoid and other intestinal disorders, of diphteria, tuberculosis, etc. The serums and vaccines developed in Soviet institutes, including "live" vaccines, which are the most effective, have given new chances of preventing and treating brucellosis, rabbit fever, tuberculosis and plague. Vaccines against measles and whooping-cough are now being clinically tested.

Great progress has been made in surgery. Modern methods of treating fractures, for instance, restore the functions of the limbs within a much shorter time than before. Many patients regain their health after complicated brain operations. Certain diseases of the lungs and heart, which used to be regarded as hopeless, are now treated surgically with growing success. Surgery is gradually making headway in the science of transplanting organs and tissue.

Research in connection with high blood pressure, dis-balanced blood circulation in the cardiac vessels, infarct of the myocardis-diseases which strike down men in their prime, has shown that the main causes of their origin and development are disturbances of the vital rhythm and daily regimen, overtension of the nervous system due to disturbing emotions, dis-balanced metabolism. Some methods of preventing these diseases have been developed as a result of research. These methods include the organization of night sanatoriums, physical culture and various

drugs. Besides hygiene and drugs, there is surgery, which is now applied, for instance, in the treatment of angina pectoris.

One of the major achievements of medical science is the invention of medicines produced from plants, chemically synthesized or obtained by biological methods. There are at present, on the world pharmaceutic market, about 100,000 medical preparations, not a few of which have been produced in recent years in the USSR. There are drugs for lowering blood pressure and others for increasing it, there are remedies for regulating cardiac activity, for increasing or diminishing blood coagulation. The list includes effective antispasmodic preparations, drugs of the sulphate group and antibiotics that are effective against various microbes and viruses and have a vast range of use. The ganglioblocking substances developed in recent years have proved useful not only as anaesthetics in surgery. They are also very effective in the treatment of mental and nervous diseases. Modern pharmacology has synthesized various hormones and vitamins. By using them the physician is able to replace artificially the action of natural hormones in the organism, to subdue the abnormally intense and harmful function of some endocrine glands, to excite and control the diminishing or distorted functions of others. Thanks to the progress of haematology, blood and its components can be transfused from one human being to another. Protein substitutes for blood have been developed and are now widely used.

The progress made in theoretic branches of medicine: Physiology, morphology, microbiology, biochemistry, biophysics and other sciences, is no less great. These sciences penetrate the unexplored parts of the human organism and disclose the reasons of many disbalances and disorders of its physiological activities. So fine is the modern technique applied in these sciences, that the nuclea can be isolated from the cells in special apparatus, cells can be grown and studied outside the organism and the protein contained in the nuclea of healthy and diseased cells can be isolated by chemical means.

The latter, in particular, is most important for studying the origin of malignant tumours and methods of treating them and for discovering the laws of heredity and the methods of controlling these laws.

The development of I. Pavlov's theories in physiology has added much to Soviet medical science and practice. It helps the general development of medical science and knowledge of the laws and mechanisms that cause that complicated system, the human organism, to function.

On the basis of Pavlov's teaching, clinical medicine has been able to work out new methods of treating, diagnosing and classifying diseases. It has enabled medical science to expand the knowledge of laws governing the higher nervous system. The greater development of Pavlov's theories is of major importance in the defense of materialistic principles in medicine, against idealistic theories, such as those of Freud, that are wide spread in the United States.

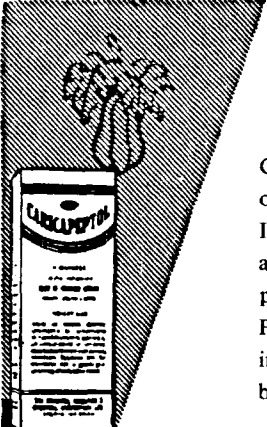
But, in spite of these and many other achievements of medical science, a number of important and immediate problems remain unsolved. This refers, in the first instance, to the problem of malignant tumours. In this connection research is conducted on a big scale in the USSR and other countries. There is no doubt that through it science is getting nearer to the solution of the problem, one of the most difficult in natural history. More work is needed and it must be still more strenuous, still deeper and wider work. Medical science has not yet discovered any radical means of preventing and treating sclerosis of the vessels and all the internal troubles connected with it, of which disorders of the cardiovascular system are the most important. The problem of rheumatism, the main reason of all acquired heart diseases, is not yet completely solved. The object of research in connection with the prevention and treatment of measles, whooping-cough, diphtheria and scarlet-fever must be the discovery of means by which it would be possible to do away with these diseases of childhood.

In regard to tuberculosis of the lungs, Soviet medical science and practice have made great progress thanks to the discovery of streptomycin, pask, phtyvasid and other new drugs. The most dangerous forms of tuberculosis are cured thanks to these drugs, to surgery and to a new organization of the service. We can and must do away in the main with tuberculosis in the USSR within the next 15 years.

The utilization of new technical equipment in the USSR, the mechanization of agricultural processes and the new geographical distribution of industrial capacities have raised many new problems in hygienic science. They include problems of labour protection connected with the development of nuclear industry, the acclimatization of settlers in northern districts and a wide range of hygienic problems connected with the huge scale of house building, construction of new hydraulic stations and big water systems and the cultivation of virgin lands.

A recent session of the USSR Academy of Medical Sciences summarized the results of the academy's work over the last 3 years, and outlined ways of solving some new problems, of importance to the development of medical science. The problem of injuries and burns, which is a major one in medicine, was discussed at the session.

There is no doubt that Soviet medical science, enjoying, as it does, the tremendous support of the government and of the public in general, will achieve new progress in the protection of the people's health.



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Sulfonamide Preparations in Treatment of Diabetes Mellitus

BY PROFESSOR A. A. GERKE

IN treatment of diabetes mellitus insulin has played a prominent part and is an example of substitutional therapy. However, the necessity of anti-diabetic preparation for internal administration instead of subcutaneous injections was felt from the moment of appearance of insulin. An attempt to administer insulin by that route proved to be futile, since its protein fraction is disintegrated under the action of gastric juice and its therapeutic effect is lost. For a long time there was no success in developing a stable preparation with hypoglycemic action, since all the preparations obtained gave pronounced side-effects, which sharply reduced their therapeutic action. In 1942 Jeanbon from Montpellier treated the patient with typhoid fever by paraaminobenzensulfonamidoisopropylthiodiazol and noticed temporary decrease of sugar in his blood. A little later in 1952, A. Lubatier synthesized such sulfonamide preparation which in intravenous and peroral administration in experiments on dogs gave pronounced hypoglycemia. Experiments were performed on dogs with excised hypophysis or suprarenal glands, as well as, with removed thyroid and parathyroid glands.

Beginning from that time a systematic study of the action of sulfonamide preparations on contents of the blood sugar was conducted in many countries. In 1955 in Germany Achelis and Hardebeck have published a report about a new sulfonamide preparation which was named BL-55 or nadisan. Later several articles appeared in the press in which the results of observations of analogous sulfonamide preparations (invenol, carbutomide, orinasa etc.) were reported.

Pharmacological examination of nadisan shows that it dissolves in acetone with ease, a little worse in water and does not dissolve in chloroform. In internal administration it is absorbed by the stomach and accumulates in the blood in two hours or later.

On the next day the contents of nadisan in the blood is decreased. This shows that the preparation is excreted from the body slowly which gives the possibility for its accumulation. Experimental and clinical observations prove the rapid absorption of nadisan and its very slow excretion. Certain experiments show that only 20% of nadisan is excreted with the urine in 24 hours. Taking into consideration these specific properties of this preparation its high level in the blood can be maintained by taking small daily doses. Clinical observations show that there is no resistance to nadisan. The toxicity of nadisan in acute and chronic experiments is not high. Even the dose of 1000 mg. per kg. of body weight does not cause death in white mice.

It was revealed by experiments that the fundamental therapeutic effect of nadisan depends upon its cumulative properties, since even large single doses do not cause pronounced decrease of blood sugar. Low susceptibility of young people to nadisan was proved by numerous clinical observations. Patients with stable excretion of acetone and other ketone bodies were also found to be unfit for treatment by nadisan. It was shown that the sphere of therapeutic action of nadisan is greatly limited. Most susceptible to nadisan are diabetics older than 40, inclined to obesity, who are sick for a short time and started insulin therapy only recently.

Taking into consideration the fact that nadisan is retained in the body for a long time, treatment begins by administration of total 24 hour dose at one time. The majority of people use the following schedule of treatment which was worked out by previous experience. 5—8 tablets of nadisan (2, 5—4, 0 grams) are taken on the first day. On the second day the dose is decreased to 3—4 tablets (i. e. 1, 5—2, 0 grams), and on the third and the following days of treatment 2—3 tablets are sufficient (i. e. 1, 0—1, 5 grams).

The action of this preparation may be sometimes noticed already on the first day of treatment, but usually the therapeutic effect is observed only beginning from the second day. If no positive results are obtained, it must be considered that nadisan is not fit for the given patient. In treatment by nadisan diabetic diet is obligatory. All treatment by nadisan should be conducted under strict laboratory control of sugar contents of the blood and urine. Addition of extra food to the diabetic diet is allowed only if nadisan shows pronounced therapeutic effect. Temporary ketosis which appears as a result of recurrent disease is not a contra-indication to the use of nadisan.

Nadisan, as well as the majority of sulfonamide preparations has bacteriostatic effect on intestinal microflora. Although the toxicity of this preparation is very low sometimes complications develop skin eruptions, drug fever granulopenia, thrombocytopenia. Prolonged intake of nadisan in therapeutic doses does not show any pronounced effect on the metabolism of the body.

In patients with diabetes mellitus, who are suffering from this diseases for more than 5 years we succeeded in substituting insulin therapy by nadisan gradually. However, sometimes it resulted in hypoglycemic shock. Therefore such substitution may be done only in the clinic under careful laboratory control. Some patients may be treated by combined method (together with insulin) gradually decreasing the dose of insulin.

In the Soviet Union nadisan is used in certain medical institutions by professors Lavsky, Preobrazhensky, Shereshevsky. For treatment by nadisan suitable patients were chosen. By close observation of these patients it was revealed that when generally used dosage of nadisan (i. e. from 2—4 grams a day) is administered therapeutic effect is produced not in all individuals. Thus the age factor actually limits

A man telephoned his doctor, asking him to come over as quickly as possible. "My wife has appendicitis!"

The doctor retorted, "Nonsense! I took your wife's appendix out three years ago, and I never heard of anyone having a second appendix."

To which the anxious husband replied, "Ever hear of anyone having a second wife?"

the use of nadisan. The best results are obtained in patients aged 40—72 years. There was a prevalence of men among our patients (correlation: 3, 5:1). The duration of the disease before the introduction of treatment by nadisan was from 2 to 12 years. The best results were obtained in patients who did not use insulin regularly or in those who used it only in small doses.

We selected not more than 52% of the number treated in medical institutions for the last 1½ years. 84% of the patients in this group were treated by nadisan only, while the rest were treated in combination with insulin.

The decrease of contents of sugar in the blood and urine was noted usually from the second day of treatment by nadisan (in 92% of patients). In 4% such decrease was noted from the third day of treatment and in 4%—from the fourth day. The duration of this treatment was usually about three weeks. Later the patients received not more than one tablet of nadisan a day, and certain patients interrupted treatment by nadisan for 3—8 weeks without increase of the level of blood sugar. All patients who were at first treated in the clinics later continued their treatment and regimen at home, receiving consultation at the polyclinic. There were positive results noted in 78% of the patients; 16% were treated by combined method, while 6% showed no beneficial results and returned to insulin therapy.

Thus even with careful selection we had a group of patients in whom nadisan produced no therapeutic effect. The reports that were published show that nadisan is contra-indicated in liver diseases, although there is no convincing evidence showing that this preparation has any harmful effect upon the liver function. Practical experience shows that there are certain prospects in the new methods of treatment of diabetes mellitus.

THE HOUSE FLY

By P. N. GUPTA

INTRODUCTION

THE fly is considered more as a nuisance than as a carrier of disease. This is because there are a number of several true flies or two winged insects which are annoying pests about the houses. The most common of these are little housefly, latrine fly, blow flies, bluebottle flies, greenstable flies (biting housefly), black flies, buffalo gnats or turkey gnats (Family Simuliidae), house flies and deer flies (Family Tabanidae), but the one which exists in millions in villages, cities, sweet shops, mutton stalls and elsewhere and the one which is responsible for great mortality among the human beings is the 'HOUSE FLY' (genus MUSCA).

No place in India is free from the housefly and it feeds whatever human beings eat. Infact the flies taste the food before we do so. When the food is laid and before you arrive, the fly visits it. When the sweets are being prepared or when they are exhibited for sale to you but before your purchase, the fly tastes the preparation. It is really awful, as you will learn later, if the food be visited by perhaps the dirtiest thing among all insects which virtually feeds one human being on the excreta of another or sometimes feeds you or your own. It sounds horrible and obnoxious, but this is how plainly it could be put in. Knowing this if we still neglect sanitation, it is simply suicidal.

The common species of houseflies seen in India are:—

- (i) *Muscadomestica* —Hills in N. W. India.
- (ii) *Musca Vicina* —Throughout India, particularly in submountain regions and at hill Stations.
- (iii) *Musca Nebulo* —Commonest throughout India.
- (iv) *Musca Yerburi* —Widely distributed in South India.
- (v) *Musca Sorbens* —Widely distributed.
- (vi) *Musca Vetustissima* —Widely distributed.

- (vii) *Musca Villenevui* } Common in houses along
- (viii) *Musca ventrosa* } outskirts of Delhi.

The general characters, development, bionomics of all these species is in common with each other and as such a general description of the housefly is given in this paper.

GENERAL CHARACTERS

The housefly is so well known that a description should seem unnecessary but yet it is so small an insect that a man pays little heed to observe its characters. The body as in other insects is divided into three distinct regions, the head, thorax and abdomen. The head is very mobile, covered by two large compound eyes, closely proximated in males & widely separated in females. Placed between the eyes are a pair of segmented antennae. The mouth parts are adapted for sucking only and thus the fly is incapable of biting and can only suck liquids. From the undersurface of the head arises a long proboscis used for sucking. When fully extended proboscis is somewhat longer than the head, otherwise it can be withdrawn into a cavity on the undersurface of the head. The proboscis is covered with hairs and bristles over its entire length. The head is connected by a narrow neck to the thorax, which consists of three segments fused together. The thorax bears a pair of wings, a pair of halteres or balancers and three pairs of jointed legs covered with short stiff hairs. The legs end in a pair of claws with a pair of membranous pads or pulvilli. The ventral surface of the pulvilli is covered with innumerable closely set secreting hairs, by means of which the fly is able to walk in any position on highly polished surface.

The abdomen is segmented, variously marked, the pattern serving to distinguish the different species from one another.

LIFE HISTORY

In their life cycle, the fly passes through distinct four stages, egg, larva, pupa, & the adult.

THE EGGS are laid deep into decomposing or fermenting waste matter of animal, human or vegetable

origin, provided that it is moist and furnishes, the degree of warmth necessary for hatching the eggs into larva. Egg laying stops at an atmospheric temperature of 10° C. A number of females lay eggs in company so that many thousands may be seen in a dark crevice at one time. A single fly lays 100—150 eggs at a time and may deposit 5—6 batches during its life. The eggs are pearl white, oval in shape like tiny grains of polished rice, about 1 mm. in length.

THE LARVAE (Maggots) In hot and humid climate the eggs become larvae in 6—8 hours but this period may be extended to 4 days depending on temperature and humidity. e. g. at 10° C. It may take 2—3 days, where as a higher temperature may hatch them into larvae in 8—12 hours or even less. The eggs develop more rapidly under blue or violet light than under white, yellow, green or red. The larvae are creamy, cocoon shaped, $\frac{1}{2}$ " size, very active, legless, pointed in front, blunt & round behind. They die at 55° C. and can burrow upto 4 feet. They breathe through two pairs of spiracles, one a little behind the anterior end and the other pair in the middle of blunt posterior end. They are voracious eaters, essentially vegetable feeders, feeding animal matter in the form of animal excrement only. The larvae moult thrice during this stage before becoming pupae in 5—8 days depending on temperature and the quantity of food available for the growth of the larvae. During winter the larval stage may last several week. When a fullgrown larva has reached a suitable sheltered spot, it rests for sometime preparatory to changing into pupal stage.

THE PUPAE are cylindrical, brown in colour, $\frac{1}{4}$ " size. They burrow towards drier places, are quiescent. Within as little as six hours the last larval skin hardens and by a process akin to tanning, gradually darkens until it is a rich, dark brown. This is strange how creamy larvae turn into dark brown pupae. This is explained 'A dihydroxy phenol and a water soluble protein are first secreted by the hypodermis in the outer layers of the cuticle. The protein then reacts with the oxidation products of the dihydroxyphenol to form a rigid type of protein called sclerotin, very resistant to most enzymes and chemical reagents'.

Having developed such a rigid body during the larval stage and then having a quiescent life during pupal stage, the adult fly is formed in 3 days or even

in 4 weeks depending on the temperature & humidity. This coming out of the larval shell is a problem. This is attained by expanding a small sac provided on the top of his head just behind the antennae. Expansion of sac splits the cap of the pupal case & the adult fly crawls out.

THE ADULT fly as it crawls out, the wings expand, become flat, thin and transparent, body develops its decorative colours, the sac vanishes completely. The chitin of the body hardens and after this the fly sets out on its nefarious activities. Once the chitin on the body hardens, there is no further development. It is a misnomer to consider that small flies are young flies, in fact they are a different type. Under favourable conditions of temperature, humidity and food, it is ready for egg laying in 3—5 days after emergence.

HABITS & HABITAT

- (a) **Breeding:**— The fly is guided by the sense of smell in finding a breeding place and the best is the fresh sheep dung, then pig, horse, cow, buffalo manure, human excreta and then the garbage.
- (b) **Rate of increase:**— A single female lays 100—150 eggs at a time, lays 5—6 such batches during her lifetime. Under normal conditions in seven days adult flies are formed which in turn reproduce after 5 days and soon. The progeny of a pair, if none die, would occupy a quarter million cubic feet space at the end of five months (June-October). On the other hand a single housefly would produce 5,589,720,000 descendants between 15 April and 10 September. The luckiest thing is that there is enormous mortality between eggs and adults depending on temperature, humidity, food available winds & storms, natural enemies & so on. The ants destroy about 91% flies between egg and the adult stage. The eggs suffer a mortality of about 2.23% in the laboratory and 11.50 in the insectary. For larvae the comparative figures were 17.33% and 20.58 and for the pupae 8.65 and 17.6%.
- (c) **Seasonal prevalence:**— A high temperature is conducive to the production of large

numbers of flies by shortening the development cycle, hastening sexual maturity, stimulating activity & oviposition. As such number of flies is more in summer than winter. With increased humidity compatible with high temperature, breeding is at the maximal.

- (d) **Longevity:**— It has been seen that life increases in direct proportion to decrease in atmospheric temperature and the life may be as much as 91 days. In the height of summer life may be only 2—3 weeks.
- (e) **Colour Attraction:**— It is most attracted by red, with dusky blues as second choice. Then come yellow, medium grey surfaces, green, light grey, sky blue and white the least. In general darker the ground, the more attractive it is to a fly, but no colour repels them.
- (f) **Feeding:**— Flies like their food rather warmer than the air preferably between 38°—48° C. It is too cold below 10—13° C and it is too hot over 56°—58° C.

The flies must have a drink within 48 hours. It has a distinct taste for beer. Poison baits containing beer are very successful to kill flies.

The mouth parts of the fly are fitted for sucking only. So either it takes liquids or makes things juicy before sucking in. For this purpose it vomits out the contents of its stomach on the food & takes it up. At the same time it defecates because it has a small crop and its greed for feeding is immense. So vomiting, feeding & defaecation proceed simultaneously. It passes liquid faeces every 4½ minutes. This is how it picks up infection and imparts infection.

- (g) **Dispersal & Flight Range:**— Unlike the aeroplane, the fly can rapidly move sideways in the air. This is done by temporarily stopping movement of one wing.

The fly can also alight upside down on a ceiling. As the fly approaches the ceiling he does a half roll before landing & comes to rest at an angle only slightly divergent from the original direction of flight. The fly is not a fastmover in the air, usually

speed being a little over six feet a second. i. e. about four and a half miles an hour. The flies are stimulated for dispersion by a strong desire for food and an ideal site for oviposition. Temperature, wind and weather also play an important part in dispersion. If it were possible to make a fly go in a straight line and refuel him in flight with sugar, the maximum flight range might amount to hundreds of miles. Usually in Urban areas where food is plenty, the range of flight for control purposes is considered as five miles from the breeding place.

- (h) **Attraction:**— Isovaleraldehyde as a 0.013 M solution was superior as an elefactory attractant for the flies *Musca domestica*, to all other chemically defined materials hereto-foretested. (DETHIER. SCIENCE 115 (1952))

Houseflies produce or bear some substance that is attractive to others of the species. When flies visit a bait they contribute this substance to it and so enhance the attractiveness of the bait. (BARNHART, Science 117—1953).

- (i) **Fertility:**— 'To the male housefly, as to the most young men, there comes a time from the 10th day of his life on the wing, in fact, when he turns to thoughts of love and when his eye lights on a likely mate he is quite capable of pursuing and catching her in flight. The pair then rapidly come to earth and he arouses an affectionate response by the rather old method of stroking her head with the lower part of his legs.

'After that brief honeymoon Mrs. fly has her mind fully occupied for from four to eight days waiting for the happy event. The male fly is inclined to go off and seek another mate.'

FLIES & DISEASES

The flies, all over the body, the proboscis, the legs are covered by tiny hairs. The flies delight in sputum, faecal matter, discharges from wounds and open sores. So the infection is picked up into the stomach and over whole of the body. When flies sit on exposed food the infection is mechanically passed by contact with its body, its vomit & its faeces. There are about 30 diseases transmitted by the flies, of which a few are Typhoid groups of fevers

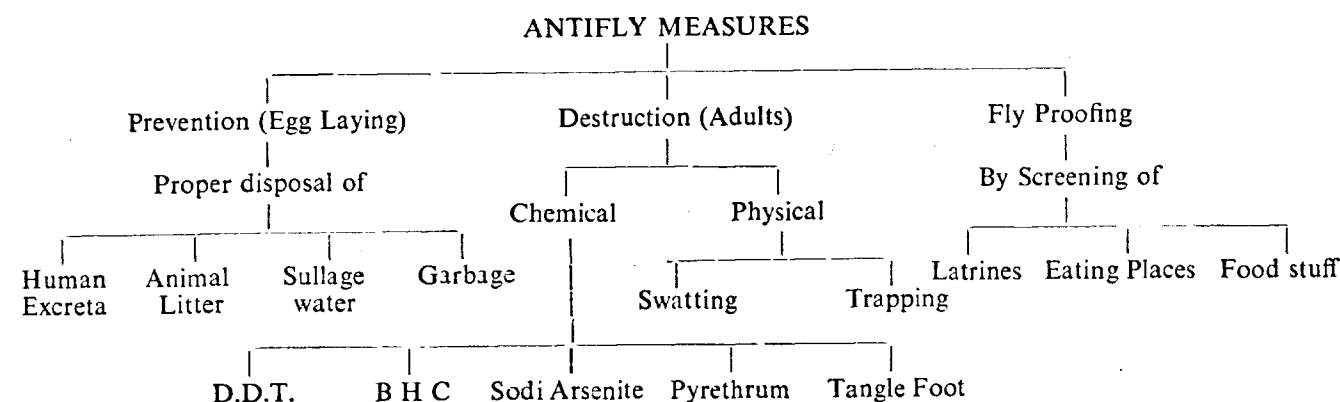
Cholera, Bacillary Dysentery, Infantile Diarrhoea, Anthrax, Trachoma, Conjunctivitis, Tuberculosis, Leprosy, Pneumonic Plague, Poliomyelitis, Yaws, Amœbic Dysentery.

The fly is capable of keeping the bacilli in an active state for a number of days e. g. Typhoid bacillus for about six days, Plague bacillus (8 days) Poliomyelitis (48 hours) Staphylococcus (8 days)

Salmonella enteritidis (30 days).

CONTROL

From its importance as carrier of diseases and it being a nuisance and being the filthiest natural production, it is essential that every effort be made to get rid of this insect and control its production, kill its generation and prevent its access to our food stuff.



a) PREVENTION OF EGG LAYING

'The domestic fly will continue to be a menace to the public health until the level of general sanitation in towns and in the country side improves considerably. The satisfactory collection and disposal of the dung of animals, human excreta and of other refuse are essential to produce the desired improvement. The danger will decrease in proportion to the extent programmes of night soil conservancy through water carriage system & through construction of latrines becomes implemented! (Health survey committee).

Replacing animal transport by mechanical transport has reduced flies in England & America and is bound to show results in our country.

Composting is a successful means for the proper disposal of all town waste. It is Hygienic, and economic.

b) DESTRUCTION

- (i) *Breeding stages.* Treatment of collection of garbage to deter flies from Ovipositing and to kill larvae has been successfully tried. Borax, ground phosphate rock, solution of potassium permanganate (1 table spoon in 1 Gallon)

Pyrethrum powder (1 : 320—500 : : Pyr : Pdr : manure) Sodium fluosilicate, Sodium arsenite, when spread on breeding places kill larvae. The method requires extra labour and is wasteful. Gammexane dusts (4 and 20 per cent) used at weekly intervals resulted in 98 per cent of flies in Egypt. Application of 2 per cent MALATHION water emulsion at the rate of 2 Gallons per 50 square feet of manure satisfactorily controls larvae. DIAZINON suspension also prevents development. In view of the growing resistance among adult flies, use of insecticides to kill larval stages has been discouraged as contamination of larval medium is reported to be responsible for rapid development of resistance among flies.

(ii) Adult Flies

- (a) Hand swatting by fly flaps

- (b) House flies rest on hanging objects etc. in the night which may be burnt. These may be treated with D. D. T. Solution or with Tangle Foot (Mixture of Resin & oil Castor) Adhesive baits may also be smeared on wax papers and kept near cook houses/latrines.

- (c) (i) Poison baits e. g. 1% Sodium arenite mixed with sugar & water provides a good attractant and a killer. The disadvantage is its poisoning the animals.

- (ii) 40% formaldehyde (5—6 parts), clear lime water (50 parts) sugar (2.5 parts) water (upto 100 parts). This solution is placed in a bottle out of which a blotting paper soaking the solution protrudes out. The flies will be attracted, will sit on blotting paper and will die. This is useful for mess tables.

- (d) (i) Spray killing by Pyrethrum solution, preferably a mixture of pyrethrum Extract 1%— 1 Gallon D. D. T. —1.5 Lbs. Kerosene — 29 Gallons is useful.

- (ii) Scabrin in simple sprays has been found to be 1.6 times as toxic as pyrethrums (Gersdorff. T. Econ. Ent: Vol. 45, NO. 3—1952)

- (iii) Heptachlor and aldrin are about four times as toxic as chlordane, as space sprays. Dieldrin is about half again as toxic as aldrin and thirty times as toxic as natural Pyrethrums. (Gersdorff soap 1950 Vol. 26 NO. 4)

- (iv) Lindane Vaporizers dispersing about one gram of Insecticide per day will control flies in a ventilated but screened room within three hours.

(c) Contract poisons with residual toxicity :—

- (i) Flies in dairies, houses and factories can be successfully controlled by spraying the walls and ceilings with D. D. T. Solution, emulsion or suspension.

In addition to D. D. T., a number of other synthetic insecticides have been used. The order of prolonged residual action being Dieldrin, B H C, heptachlor, chlordane, pyrethrum, synergist and D. D. T. (Pest control 1950)

The problem of developing resistance amongst

insects especially house fly against synthetic insecticides especially Chlorinated hydrocarbons was discussed in great details in a previous issue published in October' 1957.

- (ii) The phosphatic compounds, while they are highly toxic to human beings, less persistent than D. D. T. & at the same time more expensive, yet the insects have developed no resistance to them.

Diazinon (Suspension, Emulsion)

Malathion (emulsion, suspension, suspension + sugar)

Chlorthion (Suspension)

Isochlorthion (1% Emulsion & suspension)

Penthion 80 (0.5% emulsion)

Pirazinon (0.5% emulsion) have all been tried, out of these Diazinon suspension applied at a dosage of 100 mgm. per square foot has been found to have the maximum residual effect lasting 10 days (Hansens and Bartley 1953)

Parathion impregnated on gauze strips is useful in killing flies.

Fortunately there is no evidence of resistance amongst house flies in India as yet, and as long as it is not there we can use D. D. T. and Gammexane (BHC) to their best.

(c) FLY PROOFING

Screening of latrines, eating places and food stuff to ward off flies, to save them from picking up infection and then contaminate the food is a very useful means but it is expensive and in a country like ours, most of the constructions are not so suitable for screening. But wherever we can and wherever one can afford, the screening of the house should be done. This should be as complete and perfect as possible, otherwise it defects the whole object. Chicks are useful as a means of screening doors and windows. Any hanging and moving objects in the door act as a deterrent to flies and they do not enter. The easiest and the cheapest method which can be practised in Villages is to fasten strings at 1" distance from upper edge of the door, let them loose at the lower end but to keep them pulled down a little weight may be attached. This screen of strings though wide apart, will move with the prevailing wind and there by deter the flies.

All food should be covered, by what ever means we can. The rule should be from the fire into the flyproof cage.

The Municipal and local bodies have an unflinching duty towards the public and under no circumstances a food shop should be permitted to ply trade till it conforms to basic requirements of a flyproof cooking place and a flyproof eating place. After all we have to raise ourselves one day. We have had enough of backwardness and ignorance. Nationalism brings progress but every body must play his part. Maintenance of nationalism is more difficult than to achieve it and I wish my countrymen will not neglect nation building activities towards a healthy nation.

CONCLUSION

Just as road etiquette is taught to a child, before he is permitted to go on the road, similarly a man in twentieth century can not be a success unless he possesses the knowledge about scientific and technical developments. Our masses are devoid of rules of Hygiene. It is as much a fault of the journalists as of the public health worker, in particular the Physician. Scientific journalism is now on the increase, much more in foreign countries and to a small extent in ours. This needs attention.

Bad sanitation is the root cause of the flies and the diseases conveyed by them and until we remove insanitary conditions prevailing all over the country, we have got to suffer.

Public health is an important portfolio for every Government or a local body but public cooperation is essential and must be achieved by propaganda, training and public health work by everyone in authority.

BIBLIOGRAPHY

- Barnhart. C. S. & L. E. Chadwick (1953) Science 117 (3031) PP 104-105
- Dahm. P. A. & C. W. Kearns (1951) Ann. Ent. Soc. Amer. 44 (4) PP 573-580
- Decker G. C. & W. N. Bruce (1951) Soap, 27 (b) PP 139-143, 159

- Dethier V. G. (1952) Science 115 (2980) PP 141-142
- Gahan. J. B. & J. M. Weir (1950) Science, 111 (2894) PP 651-2
- Government of India (1946) Health survey & Development Committee report Vol. II PP 266
- Gupta. P. N. (1956) 'Antiseptic' Madras. July '56
- Gupta. P. N. (1957) Surgical & Medical News, Oct. '57
- King. H. (1953) Quart. Bull. Mich. Agric. Exp. Sta 36 (2)
- Madwar. S. & A. R. Zahar (1951) Quoted in practitioner June 1951
- Pal. Rajindar (1956) Bull. Nat. Soc. Ind. Mal. Mosq. Dis Vol. 4, NO. 6 PP 186-195
- Pequignot. H. (1956) W. H. O. News letter April -May '56
- Puri. I. M. 'Flies & Disease' Govt. of India Health series
- Quarterman K. D. & W. Mathis (1952) Amer. J. Trop. Med. 1 (b)
- Ross Institute London (1953) 'The House Fly & its control!'
- Tredre. R. F. (1952) Personal Health in Warm Climates
- Virginia Deptt. of Health (1946) 'Insects & related Pests!'
- W. H. O. (1956) Mal/Inform/18
- W. H. O. (1957) World Health Mar-April '57
- Wichmand. H. (1953) Nature. London 172 (4382) PP 758-759

COMBATING GLAUCOMA

BY DR. M. ROMANOVSKY, M. Sc. (Medicine)

AMONG most important problems of modern ophthalmology the first place is occupied by glaucoma. The analysis of statistics of incurable blindness proves that about one quarter of all blindness is caused by glaucoma.

Mysterious aetiology, complex pathogenesis, difficulties of diagnosis, characteristic features of its course and irreversible outcome of the disease explains the fact that for a long period of time including the last few years, glaucoma was considered to be an insurmountable evil. However, critical, creative utilization of the old scientific heritage together with the latest investigations gave the opportunity of approaching the final solution of the problem of glaucoma and of planning new ways of combating it.

It becomes more and more apparent that, regardless of the acknowledged opinion, glaucoma cannot be considered as a single nosological item. Glaucoma is rather a conventional conception, which unites several conditions with a common leading symptom—increased intra-ocular tension with disturbance of ophthalmotrophics.

The term "glaucoma," similar to the term "fever" or "typhoid," which used to unite several diseases principally different in origin, is at the present time only a conventional term.

Various clinical and functional investigations, experimentally induced glaucoma, new instrumental methods of investigation—electrotonography, gonioscopy and ophthalmocompression prove that the increased intra-ocular tension and specific disturbances of ophthalmotrophics may be the result of different aetiological and pathogenetic factors. In certain cases the increase of intra-ocular tension is a fundamental cause of atrophy of the ocular nervous apparatus; in the other—these atrophic processes are only associated with increase of intra-ocular tension.

Corresponding to the complex mechanisms which take part in the process of regulation of the trophic function and intra-ocular tension, numerous and

even more complicated causes exist which are capable of provoking disturbances and later the break of these mechanisms. Thus, from one point of view, this disease is due to disturbance of the vascular system and particularly of the regional brain hemodynamics, sclerosis and dystonia of the vessels, disturbance of the water metabolism, disorder of the endocrine system and especially disturbances in hypophysis, which are intimately connected with the vegetative nervous system and its centres; on the other hand one has to take into consideration the presence of the definite local predisposing factors, such as characteristic structure of the eye as a whole and its fluid forming and fluid escaping apparatuses, particularly its direct and indirect negative influences upon the eye. The above mentioned is far from being a complete list of local and general factors, which may cause the appearance of pathological processes, called glaucoma.

Frequently used general sentences, as for example "glaucoma is not a disease of the eyes, but of the whole body," or "glaucoma is a sick eye in a sick body"—these, from the point of view of pathophysiology, truths are capable of becoming useful only after thorough concretization. To talk about glaucoma in general, without distinguishing its certain forms by signs which excite or predispose its appearance—means to go backwards and not forward. The subdivision of the disease permits to plan the more rational methods of diagnosis of glaucoma at the present time. Differential, complex treatment which aims at restoration of harmonic interrelationship of the neurocirculatory and endocrine systems and, as far as possible, at removal of the local predisposing factors gives the opportunity to achieve much better results.

For certain forms of glaucoma the prognosis of the disease which has already developed is still serious and many questions concerning therapeutic methods in one or the other stage of the disease are still being discussed. However, it is certain that the most favourable results as to preservation of the visual function are achieved when treatment begins in the early stages of development of glaucoma.

This disease in the majority of cases does not appear at once. Usually there exists a period of disturbance of physiological processes with gradual transformation into pathological. This is a transitional period from health to disease, preglaucomic phase, a phase of transitory dysfunction of tensioregulation and ophthalmotrophics. This period is mostly characterized by sporadic appearance of the signs of insignificant disorders in the regulation of the intra-ocular tension, periodic enlargement of the blind spots for a short period of time and the other trophic and functional micro-changes. These changes may be revealed under the influence of natural strains or with the aid of special diagnostic methods. In comparison with prodromal period, which is actually a definite stage of already existing disease, preglaucomic phase is the period of disturbance of the physiological mechanisms, the phase of stabilization and the possible linking of separate factors into a single pathological chain.

Diagnosis and treatment of preglaucomic conditions (the phase of transitory hypertension and the other passing specific disturbances) is not only the discovery of the ways of successful treatment of the disease, but also of its prevention. It is actually a new page in the teaching of glaucoma.

Out of the modern methods of organization which provide prophylaxis and active treatment of diseases, the most effective is treatment in the out-patients department. It is widely used in the Public Health of the Soviet Union and likewise proved to be of value in combating glaucoma. The active prophylactic examination of the population is performed in the out-patients department of the Helmholtz Institute. A night clinic was organized at the Institute and all the required investigations are made on the background of the working and living conditions of the patients.

As a result of prophylactic examinations many patients with initial stages of the disease were revealed, who previously considered themselves to be quite healthy.

The stereotypic practice of instillation of pilocarpine in treatment of glaucoma should be stopped. The numerous causes of glaucoma required the administration of different drugs with local and general effect. Several new miotic preparations with local effect (such as phosphacol, phosarbin, armin) were introduced recently. When used in different combinations they give the opportunity to achieve better results. Since the introduction of a new preparation diacarb (analogous to diamox)—there are additional possibilities for treatment. Its peroral administration results in rapid decrease of intra-ocular tension. In treatment of glaucoma it should be remembered that there are disturbances of the nervous vascular, endocrine and vegetative nervous systems. Therefore not only the local, but also the general treatment should be recommended which aims at the maintenance of the functional value of these systems. Combating sclerosis, psychoneurological overstrain, endocrine disorders, negative factors of the external environment etc.—this is the short and far from complete list of general measures that should be followed for prevention and treatment of glaucoma.

The problem of combating glaucoma concerns not only the oculists. On one hand there are indistinct and sometimes non-specific complaints of the patients, on the other—specific features and the importance of taking into consideration the condition of the general background on which the disease develops. That is the reason why doctors of the other specialties, particularly physicians and neuropathologists, should be actively involved in prevention and treatment of this disease.

A major motion picture studio says the following is the most amazing script synopsis they ever received: (They didn't make the picture).

An Eddie Brackenish character, a hopeless hypochondriac, has been milked by the crooked town doctor (a phoney) for some time. The doctor (in bad financial straits) hearing that the London Academy of Medicine has a standing one million pound bonus for the first man who has a baby decides to frame Eddie with fake X-rays, tells Eddie he is having a baby. He explains this has only happened once before, and is very dangerous but he can pull him through for fifty per cent of the London bonus. Eddie, when the news leaks out, is deluged with requests for testimonials, vaudeville shows, signed articles, etc., etc. His fiancée, an unsympathetic character, leaves him but a pretty office girl stands by him and shows it up for what it is. Of course, the doctor is jailed. (The baby that they had planned to prove was Eddie's sends them up as kidnappers.) Everything ends happily.

Vaccine Therapy in Diffuse Sclerosis

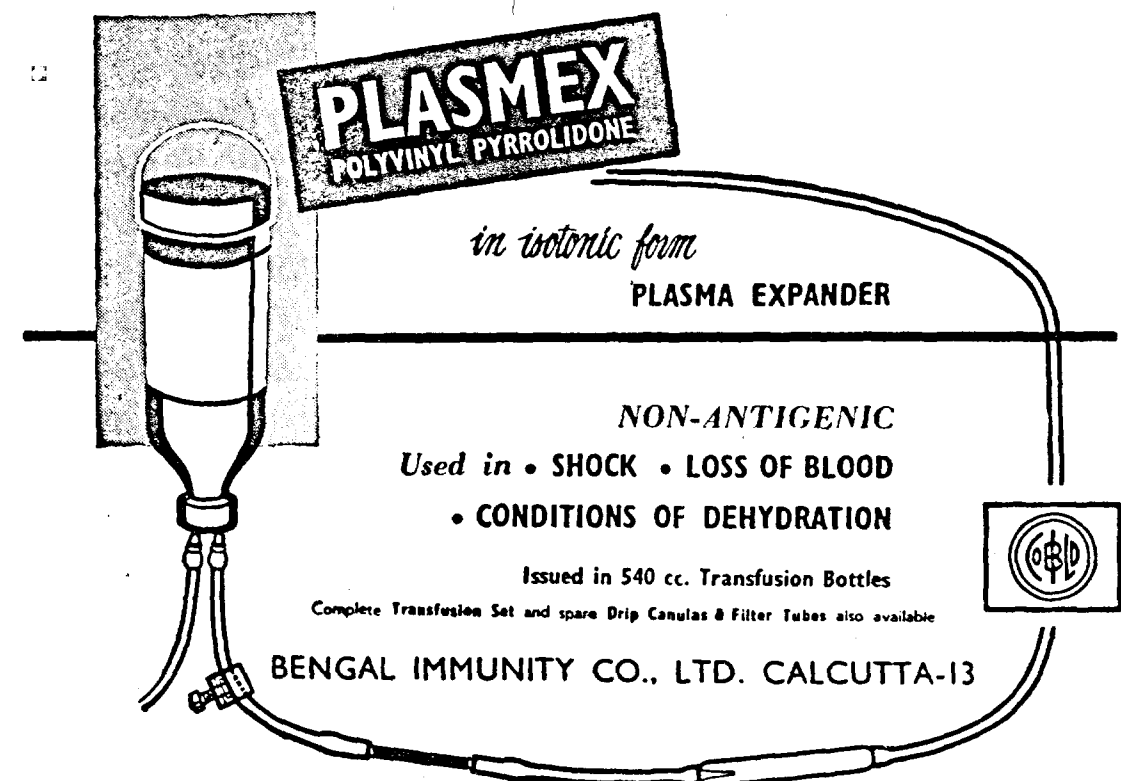
BY PROF. A. PANOV

THE most important achievement for the last few years in the study of diffuse sclerosis is the establishment of its virus aetiology. This disease proved to be aetiologically similar to the acute diffuse encephalomyelitis. It is probable that these diseases are variations of the same disease.

The virus of acute encephalomyelitis was isolated in 1943 by M. S. Margulis, V. D. Solovyov and A. K. Shubladze. Following this event it was established that in 1/2 of the patients with diffuse sclerosis the specific virus-neutralizing antibodies are present in the blood. Similarity of immunological reactions of the above mentioned diseases permitted utilisation of certain strains of the virus isolated from the patients with acute encephalomyelitis for preparation of vaccine for active immunotherapy of the

patients with diffuse sclerosis. This vaccine consists of 10% emulsion of the brains of white mice diluted with physiological saline. Mice are infected by the virus of encephalomyelitis and are sacrificed at the acute period of the disease. The virus in the emulsion is killed by formalin. Thus, this preparation is related to the so called formalin vaccines, and, although they do not contain live virus, their specific antigenic properties are preserved.

On the basis of experimental data and clinical experience a scheme of vaccinothrapy was developed for patients with diffuse sclerosis. After injections the appearance of the specific antibodies which neutralised the virus was noted in experimental animals. The concentration of these antibodies increased with repeated injections of the vaccine.



After immunisation, the resistance of the animals to experimentally induced virus infection increased.

The first clinical test supported the experimental evidence. In most of the patients, who were treated by this vaccine, a pronounced increase of the titre of the specific antibodies was observed, which was frequently connected with improvement of their general condition.

The best therapeutic effect was noted in those cases, in which the titre of the antibodies before the vaccination was very low. The course of treatment consisted of 12 injections divided into equal cycles with the interval of 12—14 days. This vaccine was injected subcutaneously into the subscapular area. The dose was 2—3 cc. in the initial injection and 5 cc. in the following. It was recommended to repeat this treatment not earlier than in 2—3 months.

Preliminary clinical tests of treatment of diffuse sclerosis by the vaccine therapy according to this scheme were carried out in several therapeutic institutions with similar results. Pronounced improvement of general condition was achieved in about $\frac{1}{2}$ of the patients.

We are engaged in the study of vaccine therapy of diffuse sclerosis and the investigation of the efficacy of different methods of its application since 1948. Research work was performed in intimate contact with the Institute of Virusology of the USSR Academy of Medicine, which provided serological diagnosis. During that time the clinic has accumulated practical data of treatment of more than 150 patients with diffuse sclerosis. Clinical observations and immunological investigations gave foundation to several new methods of treatment. First of all the necessity of individualisation of the course of treatment with recording of reactions to the introduction of antigen became apparent. These reactions may be expressed in the general weakness, headache, moderate fever and variation in intensity of the local neurological symptoms. At the end of every $\frac{1}{2}$ course these reactions were sometimes more intense and assumed prolonged character. In connection with that we increased the intervals between the 4th and the 5th injection of every $\frac{1}{2}$ course to 5 days, and to 7 days between the 5th and the 6th injection.

In pronounced intensification of the focal symptoms the number of injections was decreased. It was

usually necessary to stop treatment after the 4th injection in every $\frac{1}{2}$ course. However in decrease of reactivity to the vaccine and progressive general improvement the whole course was administered. In absence of general and focal reactions to the introduction of the vaccine, as shown by clinical experience, the therapeutic effect is nil. On the other hand, it is necessary to avoid the acute exacerbation of the infectious process, since it may be associated with the appearance of the new focal lesions of the nervous system.

It was revealed that the effect of treatment by this vaccine depends on the specific reactions to the antigen introduced. This fact instigated the search of such signs of reactivity which could be used as an indication for individualisation of the course of treatment. The temperature reaction, changes in the blood sedimentation rate and the white cell count, photo-reactivity of the skin to ultraviolet radiation and skin allergic reactions were studied in the process of treatment. The latter were observed when 0, 2 cc. of vaccine was introduced subcutaneously, as well as, intracutaneously by the same scheme.

The comparison of the variations of different indications with the specific features of the clinical course of the disease revealed that the most pronounced prognostic significance should be attached to the allergic reactions to the introduction of the vaccine. In the process of treatment these reactions usually increase in intensity with every following injection: after 3—4 injections they are almost always quite intense and are preserved for the whole period of vaccine therapy. However, sometimes an acute decrease in intensity of the allergic skin reaction was noted, most frequently with the last injections of the course. This decrease, as a rule, coincided with the pronounced aggravation of the general condition of the patient and was frequently associated with exacerbation of the focal symptoms. Thus, an acute decrease in intensity of the skin reactions is a signal, indicating the necessity of increasing the intervals between the injections of the vaccine or shortening the course of treatment.

It has been established by investigation of the reactivity to the introduction of the vaccine, that intracutaneous injections (0.2 cc.) provoked the same changes in the allergic reactions as subcutaneous (5 cc.). In connection with that it could be admitted that the immunological effect of intracutaneous

injections is going to be not less than that of subcutaneous injections. In order to investigate this problem the gradual increase of the titre of the antibodies in subcutaneous and intracutaneous methods were compared. It was revealed that in treatment of diffuse sclerosis by intracutaneous injections of 0.2 cc. the value of the titres of virus neutralizing antibodies was equal to that obtained in subcutaneous injections of 5 cc. of vaccine. The time limits were almost identical too.

Clinical tests of intracutaneous method of vaccine therapy has shown that its efficacy is not less than in subcutaneous method of introduction. A few of its advantages should be pointed out: the introduction of large amount of foreign protein becomes unnecessary, the course of treatment may be individualised according to the skin reactions, finally, the amount of expensive vaccine utilised is greatly reduced. All this gave us the opportunity to recommend the use of intracutaneous method of vaccine therapy as equivalent to subcutaneous. The vaccine is injected intracutaneously into the palm surface of the forearm in the dose of 0.2 cc. The intervals and the number of injections are the same as in subcutaneous injections. In low reactivity larger amounts of vaccine may be introduced, making 2—3 papules simultaneously. At the present time the intracutaneous method of vaccine therapy of diffuse sclerosis is successfully used in numerous therapeutic institutions.

In insufficient efficacy of treatment we frequently use subcutaneous method in combination with intracutaneous. In such case 0.2 cc. of vaccine is introduced intracutaneously and at the same time 2 and 3 cc. of the vaccine are injected subcutaneously in the first 2 and 4 and 8 cc. in the following 2 injections. Such method of treatment may increase the immunological effect of vaccination. Besides, the specific features of allergic reactions may be taken into consideration.

As we were convinced, the first course of vaccine therapy does not give stable results. The signs of decline if infectious process and stabilisation of the general condition appear only in 4—5 courses administered during 3—4 years. Repeated courses of treatment were recommended only in 2—3 months. Of course, the intervals between the injections cannot be standardized and should vary depending on the course of disease. If after the first course there is no improvement it should be repeated in 2—3 months.

In pronounced therapeutic effect vaccination should be repeated at the time of stabilisation of the disease, and especially in appearance of the first signs of aggravation. Probably the vaccine therapy will be more successful if it becomes possible to maintain the high level of immunity for a long period of time. The characteristic course of multiple sclerosis with episodic exacerbations and remissions is due to the fact that immunity in this disease is rather unstable. The instability of vaccinal immunity is likewise proved by these frequent exacerbations between the courses of the vaccine therapy.

In connection with that we came to the conclusion that there should be no long intervals between the therapeutic courses. We suppose that in order to maintain the stable immunity, systematic stimulating revaccinations after massive active immunisation are more reliable. This inference is made on the base of extensive experimental data obtained by immunologists. In conformity with the above mentioned we used the following method: after the first course of vaccine therapy (12 injections) by subcutaneous, intracutaneous or combined route of administration the patients were revaccinated once every month. For that purpose 0.2 cc. of vaccine is introduced intracutaneously and 4—8 cc. subcutaneously. This treatment should be continued for not less than one year and if favourable results are obtained it should be prolonged. The course of vaccination (12 injections) which follows the usual schedule is repeated only if the general condition of the patient is aggravated.

The final evaluation of such method of vaccine therapy may take place only after many years of practical experience. However, after 2 years of clinical observations it may already be recommended at the present time. The following should be taken into consideration for correct understanding of vaccine therapy in diffuse sclerosis: the therapeutic effect of the vaccine is due to the increased resistance of the body to infection. Thus the stabilisation of the general condition of the patient pointing to decline of the infectious process is the clinical evidence of its efficacy. Naturally the vaccine therapy should be associated with the other methods of treatment.

Vaccine therapy may be used in all forms of diffuse sclerosis of any duration if the signs of progress of the infectious process are present (such as intensification of the focal symptoms, appearance of new focal lesions in the central nervous system). In

multiple sclerosis the structural disturbances in different parts of the nervous system correspond to the various phases of inflammatory and degenerative processes. In disease of long duration the most serious disturbances may appear in the late stages of the disease and, therefore, may be relatively fresh. In such cases vaccine therapy is indicated.

The absence of any signs of the progress of this disease for 2—3 years is a sufficiently reliable indication of the disappearance of active foci of infection. Then injections may be discontinued and different methods of restoration therapy may be applied for residual conditions of infectious lesions in the central nervous system (such as proserin, dibazol, aloë, tissue therapy, vitamins B₁ and B₁₂, physiotherapy, physical exercises, etc.)

The possibilities of immunotherapy are not yet used to the full extent. At the present time the most urgent problem is the further improvement of the quality of the vaccine. Its purification from foreign proteins and concentration of the specific antigen are particularly important.

It is of interest to test the hyperimmune serum in treatment of different diseases, particularly in acute diffuse encephalomyelitis and exacerbation of diffuse sclerosis.

The questions of organisation of the vaccine therapy should be decided at once. At the period of treatment the patients with diffuse sclerosis should be under continuous observation for several years. In connection with that, vaccination of the patients should be centralised in definite medical institutions. We consider, that Pasteur centres or special offices in the large polyclinics could be used for that purpose. Production of the vaccine should be increased. Because of the widespread use of intracutaneous therapy it is desirable to produce and pack the vaccine in various doses (5, 0, 5 and 1 cc.)

The perspectives of raising the efficacy of the vaccine therapy in diffuse sclerosis are intimately connected with the development of methods of early diagnosis of this disease. It should be revealed at the period when the lesions of the central nervous system are still reversible.

JAUNDICE

BY DR. S. SESHADRI DIXIT

Medical Officer, Paper Mills' Dispensary, Papertown, Bhadravati.

DEFINITION

THIS is otherwise called as Icterus. It is characterised by yellow discolouration of urine, conjunctiva, skin and mucous membrane of mouth etc. This is not a disease by itself, but is a symptom-complex as a result of excessive bile pigments circulating in the blood.

Bile pigments are of two kinds—Bilirubin and biliverdin. The latter is not of much importance. Bilirubin is formed in Liver, Spleen and bone marrow. In normal blood bilirubin content is 1 in 250,000 concentration. The renal threshold of bile pigment is 1 in 50,000. Jaundice is said to be present if it exceeds 1 in 50,000.

CLASSIFICATION

The Jaundice is divided into (A) Obstructive and (B) Non-Obstructive. Obstruction may be due to

- (1) Within the ducts.
- (2) Due to changes in the walls of the ducts.
- (3) Pressure from without.

- (1) Obstructions within duct may be due to lodging of gall stores; rarely—rupture of hydatid cyst—and as a result the daughter cyst or a piece of membrane obstructing the passage of the lumen, or round worm entering through the duo-denum into the common bile duct and lodging in the canal; or the inflammation of the mucous membrane of bile duct (Catarrhal type).

- (2) Obstructions due to changes in the walls of the duct—primary carcinoma of bile duct, congenital obliterations of the bile duct (icterus Neo-notorum) simple stricture due to cicatrization of an ulcer produced by gall-stone (rare) or after operation; infective or suppurative Cholangitis.

(3) OBSTRUCTIONS DUE TO PRESSURE FROM WITHOUT

Malignant tumours of the Liver, Gummata, hydatid cysts may cause jaundice by pressing over the intra-hepatic branches of the bile ducts; enlarged glands due to primary or secondary cancer of liver, hodgkins disease, carcinoma of the pyloric end of the stomach or the head of the pancreas. Involvement of the common bile duct in pancreas as a result of chronic inflammation.

Non-obstructive variety may be classified into :—

1. Haemolytic variety.
2. Toxic variety.
3. Infective variety.

1. HAEMOLYTIC VARIETY

Bilirubin is produced from haemoglobin which is set free in general circulation by the destruction of red cells—as a result of haemolytic toxins or abnormal fragility. The latter are due to chronic malaria, pernicious or severe anaemia, familial Jaundice etc.

2 & 3. TOXIC AND INFECTIVE VARIETY

These are caused by infection with spirochaeta—ictero haemorrhagica or virus infection, severe amoebic infection of the liver; congenital syphilis of liver, acute yellow atrophy of liver, biliary cirrhosis or bantis disease; and in some cases as a result of medication of large doses of salversan chloroform, santonine, felix mass, phosphorus or aniline poisonings etc. This type of jaundice is due to the damage to the hepatic cells—which may vary from cloudy swelling in pneumonia fatty degeneration in chloroform poisoning, and partial necrosis in spiro-cactal Jaundice to almost complete necrosis in acute yellow atrophy.

SIGNS AND SYMPTOMS

There will be yellow discoloration of urine (this is



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to be differentiated from that occurs in urobilinurea, haemoeatvria and that produced by drugs such as Rhubarb, Senna or Santonine etc.) Conjunctiva, mucous membrane of the soft palate and skin—liver is palpable in obstructive type and gall bladder may also be enlarged. The faeces are bulky and offensive in odour and its appearance is clay coloured if there is complete obstruction of bile duct. The sweat may contain bile and some times the breast milk also—whereas saliva and cerebrospinal fluid will be free from bile. Coagulation is delayed. There will be very little anaemia but leucocytosis is common.

In catarrhal Jaundice the pulse is slow due to the depressant action of bile salts—but in other conditions it is normal. The blood pressure tends to be slow and there may be mitral incompetence owing to myocardial weakness.

There may be fever, loss of appetite and pain in the right hypochondrium. Haemorrhages from the gums and mucous membranes and purpuric spots under the skin may be noticed—since Vitamin K is not formed in the intestines due to the circulation of bile.

DIAGNOSIS

Recognition of Jaundice

1. Van Den Bergh's Re-agent through Ehrlich's—re-agent.

The re-agent is made as follows:—

(A) H_2SO_4 0.1 Gr. (B) Sod. Nitrate 0.5 Gr.
Concentrated H_2O 100 cc.
HCL 1.5 cc.
 H_2O upto 100 cc.

E. R. A 1 c. c. plus B 0.03 C. C.
Test 2 c. c. of Patient's serum plus 1 c. c. of E. R.

	Obstruc- tive	Haemo- lytic	Toxic or Infective.
X	—	—	—
Direct-reaction.			
(a) Prompt.	Yes.	—	—
(b) Delayed.	—	Yes.	—
(c) Biphagic.	—	—	Yes.
Indirect			
Prompt action only.	—	Yes.	—

2. Result of Hepatic Functional tests in Obstructive and non-obstructive Jaundice "Abstract from the A. M. A. Vol. 133—19th April 1947—Page 1175".

Test.	Obstructive	Non-obstruc- tive.
1. Plasma Cholestrol.	Elevated.	Normal or low.
2. Alkaline Phosphate	Increased.	Normal.
3. Serum Protein.	Normal.	Reduced—reversed albuman globulin ratio
4. Thymol turbidity.	Negative.	Positive.
5. Excretion of Hippuric acid.	Normal.	Decreased.
6. Effect of Vitamin K on Prothrombin time	Prompt.	Delayed or absent.

Differential Diagnosis.

1. HISTORY OF THE PATIENT

If he gives history of contact with any other case—suspect catarrhal jaundice as it is mildly epidemic. The use of hepato-toxic drugs such as cincophan or the arsenicals—give clue regarding cell damage. Itching of course is common and is found in all types of Jaundice but is commoner in obstructive type complicated with liver damage.

2. AGE AND SEX OF THE PATIENT

In youth, i. e., before thirty catarrhal Jaundice as a result of hepato-cellular damage is common. Whereas in middle life, i. e., between 30 and 40 and specially in women, biliary obstruction from stone is frequent. And malignant biliary obstruction is noticed in elderly patients i. e., above 40 years of life.

3. DURATION AND INTENSITY

The Jaundice from stone or from acute liver disease is usually of much shorter duration and less marked. Progressive non-fluctuating jaundice of more than two weeks duration presupposes malignancy whereas if jaundice results from chronic liver disease Cirrhosis

may be much pronounced—the former i. e., the jaundice may fluctuate even though persisting for long periods.

4. THE PRESENCE AND NATURE OF PAIN

If Jaundice results from acute liver damage, pain is rare. If it is due to obstruction of common bile duct the typical 'biliary colic' is noticed. If it is due to malignancy of pancreas—it is called painless jaundice.

5. SPLEEN

In obstructive Jaundice there will be no splenic enlargement. But spleno-megaly in acute jaundice suggests liver cell damage—Splenic enlargement in chronic jaundice suggests cirrhosis or haemolytic icterus. A palpable gall bladder in a jaundiced patient suggests biliary obstruction probably due to pancreatic cancer.

6. CONDITION OF LIVER

Jaundice with irregular enlargement of liver is due to growth, and if enlargement is smooth, it may be due to chronic pancreatitis. The presence of ascites with jaundice suggests a growth or cirrhosis, and jaundice is more marked in the case of new growth.

7. EXAMINATION OF DUODENAL CONTENTS

Complete absence of bile suggests obstruction of common bile duct due to a growth; partial obstruction will have some bile in the duodenum.

8. If there are syphibitic lesions elsewhere over the body—suspect "S 2 and W. R. test is to be done.

9. CONDITION OF STOOLS

If the colour is normal Jaundice is of non-obstructive type, if the colour is clay coloured—it is obstructive type—because of absence of bile pigments and containing much of fatty acids. If the stools contain unsplit fatty acids—that presumes complete obstruction of common bile duct plus pancreatic duct.

10. COLOUR OF THE SKIN

If the colour of the skin is pale or lemon yellow, it suggests haemolytic Jaundice. If green, it is

obstructive and if it is deep green and progressive in nature—it presupposes carcinoma of liver.

11. There will be Pyrexia in catarrhal or infective type.

TREATMENT

In treating Jaundice due to liver damage—one should try to protect the latter than do further damage by toxic drugs. That is why some use early purging to remove the toxic substances which may be present in the Gastro-intestinal tract. If Jaundice occurs during the use of cinchopen or arsenic preparations—the latter are to be stopped immediately. Rest in bed is essential and symptomatic treatment of pruritis with alkaline baths dusting powder etc. and haemorrhages with vitamins C and K and Calcium Gluconate are resorted to.

(a) TREATMENT OF OBSTRUCTIVE VARIETY

It is to be noted that the Management of patients is to be individualised. This depends upon the damage of hepatic cells caused as a result of Jaundice. The diet should contain 300 to 500 grams of Carbo-hydrate and about 100 to 200 grams of protein—Regarding fat Dr. A. M. Smell says the intake of fat may be liberalised, if it is tolerated by the Patient—whereas Dr. Henry J. Turner of Philadelphina says that the fat should be eliminated as completely as possible and this diet can be met by prescribing—sugar, fruit juices, cereals, egg albumen, soya bean preparations etc. If the Patient cannot take food by mouth glucose can be given by I. V. route in amounts upto 3000 c. c. of 10% solution daily. If the patient is mal-nourished protein hydrolysates may be given by I. V. route. Plasma may be given if the same is low. Anyway transfusions need be used only just to maintain a normal level of haemoglobin. Vitamin K should be given if there are haemorrhages. Vitamins B & C can be given on the basis of specific indications. Nephthoquinone in doses of 1 to 2 mg. with 1/2 to 1 grams of bile salts T. D. are given. Preparations such as Synkamin or hyquinine in doses of 1 to 3 mg. daily may be given by I. V. route. But drugs are of questionable value in Icterus due to severe hepatic damage. As far as possible an operation upon the biliary tract should be postponed until icterus disappears. If this cannot be done—should be withheld until the serum bilirubin level is in decrease.

(b) TREATMENT IN HEPATO
CELLULAR VARIETY

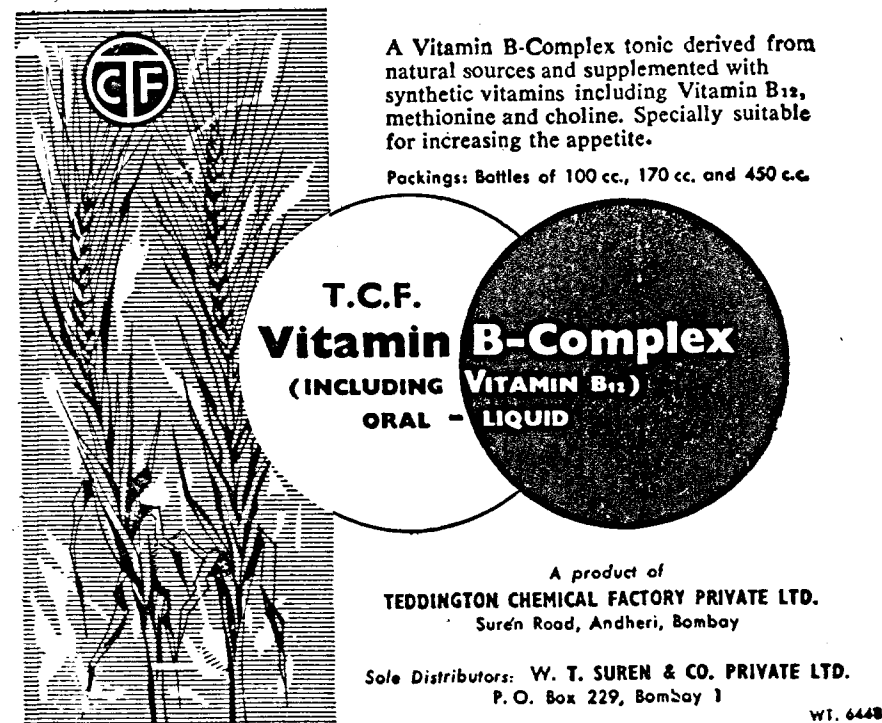
Nowadays the treatment is directed towards the maintenance of an optimal nutritional state i. e., specific treatment with proteins and Vitamins. It is planned to have carbohydrates, Proteins and fat from vegetable sources, eggs, dairy products, liver etc. Since icteric patients will have no desire to eat and even a profound disinclination to do so—the diet is to be modified to the individual taste. It is to be measured if necessary and the caloric intake charted. And supplementary infusions of dextrose and protein hydro-lysates may be made good and transfusions of blood may be given if the haemoglobin level is low. If the normal blood protein level is low—plasma is to be given 500 cc. to 750 cc. two to three times a week. The Rockefeller Workers have suggested intravenous liver extract with isotonic solution of sodium chloride. Nowadays the use of Lipotropic substances such as chlorine and methionine in infectious hepatitis have given good results. And Dr. Beams has claimed that the above substances

work wonderfully well specially in fatty liver.

In this variety also Vitamins specially B Complex plays an important role of treatment. Breyer's yeast is given in 30 grams thrice a day diluted in tomato Juice. Thiamin Chloride and Nicotonic acid should be given in plenty to whom dextrose is given intravenously. Vitamin C requirements may be met with by the use of Orange Juice or Moosambi. This will increase the palatability of the food also. Vitamin D and extra Calcium should be given who show evidence of osteoporosis. Vitamin K may not be of much value in this condition as there will be primary injury of hepatic cells.

Anoxaemia is a feature in some cases of hepatic failure. For this condition 'Cytochrome C' has given good results.

In toto, the treatment of icterus whether acute or chronic — requires patience, persistence and individual care of patients for any abnormality of metabolism.



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Vitamins and their importance to Health

BY F. MIROCHNIK AND V. KADNIN

FOODSTUFFS include not only proteins, fats, carbo-hydrate, mineral salts and water, but also vitamins, which are of vital importance for the human organism. They ensure normal metabolism, help the organism in assimilating all food components, assist the growth and development of a child's organism and increase the hardness and working capacity of adults, as well as the organism's resistance to colds and infectious diseases.

Lack of vitamins in food results in indisposition and irritability, headaches and other ailments. Children, sick persons, pregnant women and persons living in unfavourable climatic or working conditions are particularly sensitive to the lack of vitamins.

Vitamins are formed mainly in vegetable cells and to a lesser degree in animal tissues and organs. Thus vitamins are found both in vegetable and animal food.

The different varieties of vitamins are designated by letters of the Latin alphabet: A, B₁, C, D, etc.

Vitamin A directly influences eye sight. A deficiency of this vitamin in the organism is the cause of a disease known as hemeralopia. It involves the loss of sight in the dark, while in daylight or artificial light the patient can see surrounding objects perfectly well. Vitamin A, taken for several days, restores normal sight. A shortage of vitamin A also causes dryness and cracking of the skin and makes the organism susceptible to colds, bronchitis, inflammation of the gall bladder and other diseases. Persons who strain their eyes while working in order to distinguish colours or light signals (dispatchers, engine drivers, chauffeurs) should use an increased quantity of vitamin A.

Vitamin A is contained in codliver oil, liver, butter and egg yolk. Vegetable substances contain carotin,

from which vitamin A is formed in the human and animal organism. Carrots, ashberries, spinach, parsley, red pepper (bitter and sweet varieties), apricots, sorrel, ripe tomatoes and green onion contain a large amount of carotin.

Vitamin A and carotin are soluble in fats only, so that vegetables and greens rich in carotin should be eaten with cream, butter or vegetable oil, so that these substances assimilate to a greater degree. Adults daily require from one to 1.25 milligrammes of vitamin A. This quantity is contained in 2 eggs, in 50 grammes of liver, 50 grammes of carrots, or in 200 grammes of ripe tomatoes, in butter and in other foodstuffs.

The lack of vitamin B₁ causes a most serious disease called beri-beri. The symptoms are numbness, pains and cramps in the extremities and sometimes paralysis. Other symptoms are short breath and heart pains. Less grave symptoms are fatigue, irritability, general weakness, loss of appetite, and short breathing, which gets worse in winter, especially when walking.

Workers whose occupations involve great nervous tension (dispatchers, engine drivers), or work in the open air in cold seasons, require a great quantity of vitamin B₁, which is contained in wheat and rye bread made of coarse flour, in buckwheat, oatmeal, liver, yeast, etc.

The correct daily ration of vitamin B₁ is 2 to 3 milligrammes. This quantity is contained, for instance, in 300 grammes of bread or 100 grammes of buckwheat. At least half of the daily quantity of bread must therefore consist of rye or wheat bread made of coarse flour.

The organism is particularly sensitive to the absence

of vitamin C (ascorbic acid). The lack of this vitamin causes a dangerous disease—scurvy. This disease begins gradually. Its first symptoms are bleeding and ulcerated gums, loose teeth, haemorrhage in the skin and internal organs. The lack of vitamin C causes weakness, fatigue, headaches and lowers the organism's resistance to infections. Vitamin C is found in potatoes and fresh vegetables such as cabbage, turnips, tomatoes, spinach, and green onions, young nettles and sorrel. Lemons contain a great amount of vitamin C. An adult should on the average consume at least 50 milligrammes of vitamin C per day. This quantity is contained in 500 grammes of fresh potatoes, 200 grammes of fresh cabbage, 100 grammes of green onions, 150 grammes of tomatoes, or 20 grammes of black currants.

Persons engaged in arduous labour or in heat treating plants require more vitamin C, so do pregnant women and nursing mothers.

Vitamin C is the most unstable of all vitamins. A great part of it is destroyed by long storage and in cooking. A certain quantity of raw vegetables and fruit should therefore be eaten daily. To preserve vitamin C vegetables must be stored in dark, cool and well ventilated rooms. Peeled fruit and vegetables must not be left long in water because vitamin C dissolves easily and is absorbed by water.

Vegetables and fruit should be cooked in boiling water and cooked in a covered dish. If cooked vegetables are kept in store for a long time or repeatedly heated vitamin C is entirely destroyed. It also destroys rapidly if vegetables or fruit are cooked in defective pans or dishes.

Vitamin D is important for the proper formation of the children's skeleton. For this reason, expectant and nursing mothers should use it. Tubercular patients and persons engaged in underground work require vitamin D. It is also necessary in the treatment of bone fractures and other cases. A shortage of vitamin D disbalances the normal deposit of lime salts in the bones, making them soft for a long time. Children develop rachitis, a disease which has been known for long.

We usually do not get enough vitamin D in our food. It is contained in codliver oil, eggs and butter, in fish and animal liver. Vitamin D in a pure state or in vitaminized codliver oil should be taken only on the doctor's advice and in doses prescribed. An excessive quantity of vitamin D may be injurious, and, this fact should be borne in mind.

The daily requirement in vitamin D can be met by consuming 100 grammes of butter or one egg, 10 grammes of codliver, or one teaspoonful of codliver oil.

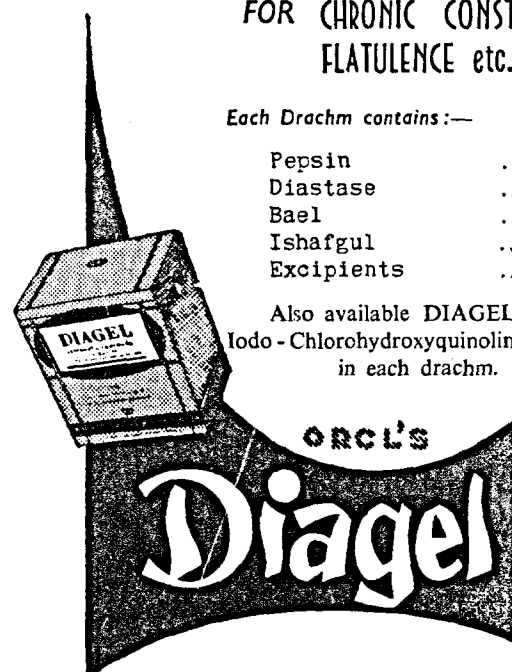
Vitamins well assimilate in a varied diet including meat, fish and dairy produce, vegetables, berries and fruit. If food does not contain enough vitamins, they can be bought in a chemist's shop. In that case it is best to consult a doctor as to the vitamins required and their doses.

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The Central Homeopathic Polyclinic in Moscow

By DR. V. VARSHAVSKY

Head of the Therapeutic Department and Consulting Therapist
of the Central Homeopathic Polyclinic.

FOR more than twenty years now there stands on Trubny Square in Moscow the Central Homeopathic Polyclinic of the Moscow Regional Public Health Department. The polyclinic comprises the following departments: therapy, surgery, gynecology, otolaryngology, dermatology, neurology, urology and diseases of the eye. Specialists in these fields receive outpatients at the polyclinic and attend them at home.

There are 54 doctors working in our polyclinic, and in Moscow there are about 200 homeopaths. They are of different ages and vary in length of service.

Twenty-six doctors have been trained in homeopathy during the last five years in the Central Homeopathic Polyclinic. All of them have studied homeopathy in the course of their practical work.

The Central Homeopathic Polyclinic receives 400 patients a day. They are attended to by doctors and consultants. Besides treating outpatients the Central Homeopathic Polyclinic trains homeopaths, conducts research work and gathers and summarises material on the homeopathic treatment of certain diseases. The results of this work are summarized in reports made at the conferences of the polyclinic which are held regularly twice a month. The doctors' conferences of the Central Homeopathic Polyclinic attract a large number of physicians who are interested in homeopathy.

There is no need in a small news article to touch upon theoretical principles which are evidently well-known to all its readers. Soviet homeopaths fully agree with the basic principles concerning the correlation of the organism and one of the elements of the external environment concerning small doses of medicines and the action of medicinal substances upon healthy people and at the same time strive to elaborate

in greater detail each one of these propositions. This is included in the plan of work of the polyclinic's staff.

For instance, the homeopathist S. Ganeman has made a study of the clinical picture of accidental and intentional poisonings with the aim of utilizing poisons as remedies. Comprehensive data was also obtained from the clinic of vocational poisonings concerning acute or chronic action of diverse substances upon healthy people. These data have made it possible to map the paths in the search for new homeopathic remedies.

Ganeman attached exceptionally great significance to the analysis and estimation of the patient's sensations. As a matter of fact, the correct interpretation of the patient's sensations often makes it possible to begin the treatment of a number of ailments at an early stage long before the disease becomes deep-rooted. This may lead to the prevention of a number of diseases by the application of homeopathic remedies.

These and certain other problems constitute our future paths for a deeper elaboration of the theoretical principles of homeopathy.

In 1918 when the decree about the protection of public health was signed in the USSR nothing was said in it about homeopathy as such. A correct decision was taken not to oppose to each other different methods in medicine. Today homeopaths widely utilize all the achievements of medical science and constantly improve their knowledge. They consider homeopathy one of the methods of modern therapy and do not oppose it to other methods of treatment.

Many doctors have known long ago that the homeopathic method is effective in many cases although

contemporary medical science does not give sufficiently convincing theoretical explanations for the mechanism of the action of homeopathic remedies.

In the treatment of certain diseases the homeopathic method has its advantages while in other diseases homeopaths have no experience whatever. Homeopaths, or to be more exact, doctors who are familiar with methods of homeotherapy can choose the most effective means for the given case in treating different patients and some doctors even consider it possible to combine homeopathy with other methods. The question of whether it is possible simultaneously to apply other remedies in combination with homeopathic medicines is a new problem which has its adherents and opponents. The solution of this controversy is a matter of the future when each side will have accumulated experience for generalizations and proof.

At any rate it is now clear that homeopaths who have mastered all modern methods of diagnosis and treatment have a considerable advantage over doctors who employ the homeopathic method only.

Beginning with 1934 work on a wide scale has been conducted in the USSR on the study of homeopathic methods of treatment. In 1934—38 work on the study of the effectiveness of homeopathic treatment of certain diseases was conducted in the Leningrad branch of the All-Union Institute of Experimental Medicine in six clinics under the supervision of Professors Barsuk, Boyachek, Chernoutsy and others. This treatment was applied to 1680 patients suffering from 16 different diseases. The results of these researches were discussed at a meeting of the Presidium of the Scientific Council of the Ministry of Public Health. In the adopted decision it was noted that the therapeutic effect of the homeopathic

method was favourable in the treatment of vasomotor rhinitis, ulcers of the cornea, furunculosis, etc.

In 1940—41 work was conducted on the study of the effectiveness of homeopathic treatment of intestinal diseases in children in the Central Pediatrics Institute of Moscow and in the Ostroumov Hospital on the homeotherapy of diseases of the joints. This work was interrupted by the war and has now been resumed. In 1954—55 fifty hospitalized patients were assigned to homeopaths in the therapeutic and surgical clinics of the Central Institute for the Improvement of the Qualifications of Doctors. Homeopaths together with the staff of the clinics treated patients suffering from stomach and duodenum ulcers, bronchial asthma, cholecystitis, gall stones, acute purulent diseases, thrombophlebitis, endarteritis and burns. Examinations of the patients, treatment, and the appraisal of the results of homeotherapy were conducted by homeopaths in close co-operation with the workers of the clinic. It was found that stomach and duodenum ulcers can be treated with equal success by homeopathic methods. Favourable results were likewise obtained in the treatment of burns of the 2nd and 3rd degree.

The results of these works were discussed at the Presidium of the Scientific Council and Board of the USSR Ministry of Public Health which have outlined the plan of experimental studies of homeopathic method and remedies in the institutes of physiology and pharmacology of the USSR Academy of Medical Sciences.

In 1956 T. A. Granikova's book "A Brief Handbook on Homeotherapy" appeared in print in the USSR. Although the handbook is very concise it nevertheless is of great help to doctors studying the fundamentals of homeotherapy.

Somebody telephoned the minister and asked to be married the following Sunday after church. The Minister didn't catch the name. When the time came he said:

"Will those who wish to be united in the Holy Bonds of Matrimony please come to the altar?"

There was a stir as 12 women and one man came forward.

The Value of Diagnostic Radiology in Obstetrics and Gynaecology

BY DR. VISHNU SARMA, M.A. (Cantab), M.B., B.Chir., M.R.C.S. (Eng.), L.R.C.P. (Lond.)
Fellow, The Royal Society of Medicine, London,
Civil Assistant Surgeon, The Govt. Women & Children's Hospital, Egmore, Madras.

RADIOLOGY is a speciality. Yet for the skilled practice of modern obstetrics and gynaecology a sound knowledge of diagnostic radiology is essential. One should never forget the fact that x-ray studies are never a substitute for a careful and thorough clinical examination. In order to acquire skill in the interpretation of x-rays a diligent and systematic method of viewing films should be practised.

It is not even a hundred years since Varnier and Vaillant demonstrated the shadow in utero of a fetus but they had to take the x-ray picture of a pregnant uterus which had already been removed from the body at autopsy. In their time the demonstration of fetal parts was made difficult by the soft tissues of the abdominal wall, the muscle of the uterus and the liquor amnii. Today with the increase in the penetrating power of x-rays, and advances in techniques such as the hot cathode tube, the compression and the Potter-Bucky grid diaphragm, it is possible to obtain better films as well as to reduce the time for which the patient has to be exposed to rays which cannot be considered harmless. A recent paper by Dr. Stewart of Oxford claims that leukaemia or other malignant diseases may be initiated in the fetus by diagnostic irradiation during pregnancy. While it is desirable that the dangers of prolonged irradiation should be borne in mind, it is a fact that diagnostic radiology has come to stay and is of very great help to the obstetrician and gynaecologist.

There are two main branches of radiology namely, diagnostic and therapeutic (radiotherapy). This article is confined to the former. The majority of films which are taken is of course the plain x-ray of the abdomen and pelvis (both antero-posterior and lateral views). In diagnostic radiology special procedures such as intravenous urography, cystography, pneumo-cystography (indirect placentography), amniography, pneumo-amniography, aortography, retrograde femoral arteriography, hystero-salpingography and last but not least cephalo-pelvimetry have been evolved.

The purpose of this article is to advocate a

methodical study of a plain x-ray of the abdomen and the pelvis. Unless such an approach is followed several conditions which may not be apparent at first sight are liable to be overlooked.

The first thing which should strike the obstetrician and gynaecologist when he looks at any x-ray film of the abdomen is to determine whether a fetus is present or not. It is usually possible to recognise the shadow of the fetus by about the 16th week although by special techniques it might be possible to demonstrate it at a somewhat earlier date. It is a useful point to remember that the bony shadows of the sacrum may obscure the fetal shadow and an oblique film sometimes helps to demonstrate a very early pregnancy. The answers to the following questions should then be sought.

Is there a single fetus or is multiple pregnancy present? Although twins are not often missed, the presence of a third fetus in triplets is apt to be overlooked.

What is the size of the fetus? Is it small, average or large? How mature is it? This may be judged by the size of the skull, the general features and a study of the ossification centres. The size of the fetus should be expressed if possible in weeks of pregnancy.

What is the lie of the fetus? Is it longitudinal, transverse or compound? What is its presentation and position? Does it present by the vertex or by the breech? What is its attitude? Is it flexed, deflexed or extended? Is the fetus normal or abnormal? Malformations such as anencephaly, hydrocephaly, talipes equino-varus, spina bifida and on rare occasions even double-monsters may be diagnosed.

Is the fetus alive or dead? Definite radiological evidence of fetal death in utero can be found only some time after fetal death has occurred. The x-rays should always be interpreted in the light of findings on clinical examination. If the fetus is alive its tone is revealed by its posture. If it is dead it loses its tone

and the bones begin to collapse and the foetus gets rolled up, into a ball. The "hyperflexion" or "ball" sign (Hartley 1939) is good evidence of foetal death in utero. A part of this "rolling up" sign is extreme angulation which may be shown by the foetal spine. The overlapping of the foetal vault bones was described by Spalding. Spalding's sign, by itself, is not conclusive. If the dead foetus presents by the breech there may not be any overlapping of the skull bones. Slight degrees of overlapping may be present in a live foetus. During labour overlapping may not indicate anything other than moulding of the foetal head while it traverses the birth canal. When a very obvious degree of overlapping is present it is certain evidence of foetal death. However, by the time this sign develops the foetus is indubitably dead.

Is the foetus diseased? From time to time disease of the foetus may be recognised. When a foetus is very large (diabetic cherub) or is oedematous (hydrops foetalis) the characteristic appearance may be seen.

Is there moulding of the foetal head or cephalopelvic disproportion? Having studied the foetus, attention should then be directed to the mother.

Is there any soft tissue opacity? The region corresponding to the vulva, vagina, cervix uteri, pelvic supporting structures, fallopian tube and ovary should each be looked at each in turn. The opacity of an enlarged uterus without foetal parts being present may be suggestive of a space filling tumour of the uterus. When, however, the patient is known clinically to show signs of pregnancy, this appearance is very suggestive of a vesicular mole. Sometimes in soft tissue films it may be possible to locate the placenta. Calcified areas which are often found in senile portions of the placenta may help in its location. When calcified areas are present in the pelvis they raise interesting diagnostic possibilities. A tumour of the ovary which often shows calcification is a teratoma. Retro-peritoneal tumours (teratomas) may sometimes present calcified opacities. Long standing fibromyomas may show a typical calcification pattern at the periphery. In pelvic tuberculosis calcification may sometimes be present. There are several other causes for calcification. These may or may not be of gynaecological origin. Yet a good gynaecologist should be able to differentiate between many of them. Renal and ureteric calculi, calcified lymph nodes, Psammoma bodies in the peritoneum, phleboliths and sometimes even guinea-worm lesions (which are by no means uncommon in our

country) may all account for calcification.

Is there disease of bone or joint? Several pelvic abnormalities are due to disease. Distortion produced by rickets is well known. The gross bony abnormalities produced by osteomalacia is not seen in Southern India although it is quite common in some regions of the North. It is not difficult to diagnose severe osteo-malacia. Nevertheless the gynaecologist and the obstetrician should be able to diagnose various other diseases of bones and joints which may confront him in his practice. These orthopaedic diseases may narrow the birth canal and give rise to labour dystocia. Among the other diseases with which he should be familiar are conditions such as secondary metastatic deposits from genital cancer.

Are there any features of interest other than the ones which have already been outlined? If one can acquire the diligence to study each film of the abdomen and pelvis in the manner which has been outlined, it should be possible to acquire some degree of proficiency in the interpretation of radiological films. To make this easy I have devised for personal use a printed form for recording this information and this is reproduced as it may be of general interest (Figure).

It should always be borne in mind that the interpretation of radiological appearances should never be divorced from findings obtained by careful clinical examination. Perhaps others will evolve their own methods of interpretation, but unless it is comprehensive and it includes the above points and a systematic method is followed, it is easy to overlook the presence of disease or several conditions which may not be quite apparent at first sight.

SPECIAL RADIOLOGICAL PROCEDURES

INTRAVENOUS UROGRAPHY

In the practice of gynaecology, urography is a valuable method of investigation. It helps to outline deviated, dilated or distorted ureters. By outlining the renal tract it helps to distinguish lesions of urological origin. Urography also helps in determining the function of the kidney. Radio-opaque dye is injected into a vein. The dye is absorbed and excreted by the kidney. X-rays are taken at intervals as the dye passes along the

urinary tract and this helps to study the different portions of it.

CYSTOGRAPHY

When radio-opaque dye is introduced into the bladder and an x-ray is taken, it helps to outline the bladder as well as the urethra. Such studies help in the recognition of disease of the bladder. When micturition is disturbed as in gynaecological complaints such as stress incontinence it helps to reveal the typical pattern of urethral distortion or descent. Cystography is also helpful in the diagnosis of placenta-*previa*.

PNEUMO-CYSTOGRAPHY

Pneumo-cystography means the introduction of air into the bladder before x-rays are taken. This procedure is also of help in the diagnosis of placenta-*praevia*. This as well as cystography being methods for demonstrating the location of the placenta are often termed "indirect placentography methods".

AMNIOGRAPHY

Amniography consists of taking x-rays after introducing radio-opaque substance into the amniotic cavity. Academically it can be of great help in demonstrating the location of the placenta by producing the characteristic filling defects within the uterus. It is not a safe method to use when the foetus is alive as it may injure the foetus. Sometimes it may precipitate the onset of premature labour. Amniography is a very valuable method in the diagnosis of vesicular mole. A quantity of radio-opaque contrast media is injected through the abdominal wall into the uterine cavity. An x-ray taken soon after, will show that the uterine cavity is enlarged. The vesicles which become coated with radio-opaque material present with irregular obliterative defects and mottled half shadows on the x-rays. Blood clots which are so common in the uterus show up as large filling defects.

PNEUMO-AMNIOGRAPHY

Pneumo-amniography consists of withdrawing some amniotic fluid from the uterine cavity and replacing it with oxygen. This idea was first thought of by Vec-

chietti in 1949. It helps to demonstrate malformation of the foetal soft parts and also aids localization of the placenta. By combining this procedure with a pneumo-peritoneum excellent x-ray pictures with strong contrast may be obtained. This procedure is not widely used.

AORTOGRAPHY AND RETROGRADE FEMORAL ARTERIOGRAPHY

These are special methods in which radio-opaque dye is injected into the aorta or arterial tree so that the internal iliac artery is filled with dye and becomes outlined when subsequent x-rays are made. It was Harnett who first pioneered the idea of using aortography, to demonstrate the placental site. Modified methods have been used by Borrel, Fernstrom, Lindblom and Westman. Their paper from the department of women's diseases in Stockholm in Sweden (1952) is the standard one on the subject. They claim that tumours of the ovary may be distinguished from those which are connected with or arise from the uterine wall because the uterus and ovary have a different source of blood supply. In many cases they combine hysterosalpingography profitably with arteriography. These are special methods. However useful they have proved themselves to be, they have not yet been accepted in routine gynaecological practice.

HYSTERO-SALPINGOGRAPHY

Hystero-salpingography is a well known procedure in which radio-opaque medium is introduced into the uterine cavity. It finds its way into the tubes and finally into the peritoneal cavity. X-rays are taken at intervals and the radio-opaque dye outlines the uterine cavity and tubes. If the tubes do not become filled with dye it suggests that they are blocked. When this process is used to study disease of the uterus it is termed "hysterography". This method helps in the diagnosis of several uterine lesions. Ulcerative tuberculosis and cancer produce moth-eaten filling defects. Polyps and myomas by protruding into the lumen give rise to rounded filling defects. A polypoid endometrium also gives rise to a characteristic pattern. Although it does not displace an endometrial biopsy in its value, hysterography is a very useful procedure. Hystero-salpingography may sometimes be effectively combined with a pneumo-peritoneum. This gives pictures with striking contrast.

PELVIGRAPHY

When radio opaque contrast media is introduced into the uterus, it finds its way through the fallopian tubes and finally spills into the peritoneum. Occasionally the dye gets into the veins and an accidental phlebogram of the pelvis is obtained. It sometimes outlines the pelvic viscera. When this accidental result is deliberately planned by introducing excess of dye the procedure is termed pelvigraphy (Kjebberg 1942). Lesions such as hydrosalpinx, ovarian tumours, cysts and tumours of the uterine wall and broad ligaments may be outlined by pelvigraphy.

RADIOLOGICAL CEPHALO-PELVIMETRY

When there are definite indications, cephalo-pelvmetry is an important radiological investigation. It consists of studying by means of x-rays the bony pelvis of the female. By this study as well as the measurement of the foetal skull (cephalometry) a radiological prediction may be made whether delivery is likely to be difficult or impossible. Cephalo-pelvmetry studies without any relation whatever to clinical evaluation can be most misleading. On the other hand when the radiologist and the obstetrician bring together their talents in making a joint assessment a prognosis of a forthcoming labour can be made with a fair degree of accuracy.

Cephalo-pelvmetry is of very great help when used wisely. The various modifications employed are complicated and an account of the classification of pelves based on such studies is beyond the scope of this article.

CONCLUSION

This article has most emphatically not been written for the super-specialist in obstetrics or in radiology. The object is to show how very useful radiology and the many other special procedures associated with this science can be for the sound practice of obstetrics and gynaecology. I wish to repeat once again that x-rays should be studied diligently and methodically. If this practice is cultivated and perfected it will be very difficult to overlook the presence of any disease. It will add greatly to our diagnostic ability. No obstetrician or gynaecologist can claim to be proficient in his speciality if he has vast lacunae in his understanding of the principles of general medicine and surgery.

ACKNOWLEDGEMENT

I wish to acknowledge my gratitude to Dr. Mrs. S. Abraham, M.D., Professor of Obstetrics and Gynaecology, Madras University, and Superintendent, The Government Women & Children's Hospital, Egmore, Madras. Through her encouragement and kindness it has been possible to unearth and go through the great wealth of unclassified material which lies like some buried treasure in the radiology department of the hospital. To Prof. Gaisford I am grateful for a reprint of a contribution by him (with Dr. Blair Hartley) entitled "Foetus-Diseases, Malformations and Monstrosities", and to Prof. Westman for sending me a reprint of the classic paper on Arteriography which is acknowledged in the references listed. I owe much to Dr. Kemp Harper of St. Bartholomew's Hospital and Dr. Brailsford at Birmingham both of whom taught me the principles of interpreting x-ray films.

GENERAL REFERENCES

- Bowes, Kenneth, Modern trends in Obstetrics & Gynaecology, 2nd Series, Butterworth, London, 1955.
- Gaisford, Wilfrid & Hartley, J. Blair; Foetus-Diseases, Malformations and Monstrosities, British Encyclopaedia of Medical Practice, Second edition, Volume five, Butterworth, London, 1950.
- Howkins, John, Shaw's text book of gynaecology, 7th Edition, J. & A. Churchill Ltd., London, W. 1. 1956.
- Kerr, J. Munro Johnstone, M., Philips, R. W. & Miles H., Historical Review of British Obstetrics and Gynaecology 1800—1950. E. & S. Livingstone, Edinburgh & London, 1954.
- Meschan, Isadore, Roentgen signs in clinical diagnosis, W. B. Saunders Co. Philadelphia, 1956.
- Moir, Chassar, Munro Kerr's Operative Obstetrics, 6th Edition, Bailliere Tindall & Cox, London, 1956.
- Holland, Sir Eardley & Bourne Aleck, British Obstetric and gynaecological Practice, William Heinemann Medical Books Ltd., London, 1955.

Olaf, Norman, Hysterography in cancer of the uterus, Modern Trends In Diagnostic Radiology, edited by J. W. McLaren, Butterworth, 1953.

Rubin I. C., and Novak, J., Integrated Gynaecology, Principles and Practice, Vol. I. The Blakiston Division. McGraw Hill Book Co., Inc., New York/Toronto/London 1956.

Sarma Vishnu,

- (1) Hydatidiform Mole and Chorionepithelioma, Journal of the Indian Medical Profession, Volume 3, No. 8, November 1956. P. 1354.
- (2) Some Special Procedures in Gynaecology, The Indian Practitioner, Vol. X. No. 1, January, 1957.
- (3) Urological Problems in Obstetrics and Gynaecology, Medical Digest, Vol. 24, No. 8 P., 626, August, 1956.

RECORD OF RADIOLOGICAL STUDIES IN OBSTETRICS

(Interpretation of radiographs)

PLAIN X-RAY OF THE ABDOMEN AND PELVIS

Antero-posterior / Lateral
view view
(Photographs of radiographs may be affixed here)

FOETUS

Present/Absent: Normal/Abnormal
Single/Multiple (specify number)
Size: Small/average/large/other
Maturity: (judge by size of skull, general features and ossification centres and express in weeks of pregnancy)
Lie: Longitudinal/transverse/oblique/compound
Position: LOA/ROA/ROP/LOP/other
Presentation: Vertex/breech/other
Attitude: Flexed/deflexed/extended
Malformations: Absent/Present/ (Anencephaly/hydrocephaly/talipes equinovarus/spina bifida/double monsters/other)
Death: Spalding's sign of overlapping skull bones/Hartley's hyperflexion sign/acute angulation of the spine/lithopaedion/other
Disease: Javert's halo sign of foetal erythroblastosis/other
Moulding and cephalo-pelvic disproportion

MOTHER

Soft tissue opacities

1. Vulva
2. Vagina
3. Cervix uteri
4. Pelvic supporting structures
5. Uterus: vesicular mole/hydramnios/other
Placenta, position (direct placentography) abnormal calcifications
6. Fallopian tube
7. Ovary: calcification in tumours/other

Disease of bone
Disease of joint
Other features

(Continued on page 42)

A CASE OF DOUBTFUL SEX

By

DR. Y. V. SUBBARAO, DR. C. SUSEELA DEVI,
DR. C. VIMALA DEVI & DR. R. ANJANEYULU

IT is not unusual to get in daily practice rare, abnormal, interesting, and puzzling cases, which demand cautious approach, and judicious attention. The following is the case of a four year old child with slit perineum, and very much hypertrophied clitoris. The parents took the child to be a girl, and gave her the name 'RAMA DEVI.'

Case :— A. R. D. aged four years. The child looks as in photo below. The child appeared to have organs of both sexes, and not entirely of one.

Male :— Long penis, prepuce, glans, and ventral grooved surface of the penis as in hypospadias. The scrotum appeared bifid with bilateral cryptorchism, and urethra opening at the base of the penis. It is

these cases with such manifestations who are very often taken as girls, given girl's names, and put in convents. The parents begin to suspect at the age of maturity when the child does not develop secondary sexual characters, and attain maturity. The picture may be very confusing and almost difficult to decide the sex if in a child there are bifid scrotum, bilateral cryptorchism, perineal type of hypospadias, and interstitial-cell-tumour of the retained testis with bilateral gynecomastia.

Female :— Hypertrophied clitoris, prominent labia, and vulval mucosa with appreciable vaginal dimple are present in this child. Abdominal palpation does not reveal any adrenal tumour. Lateral view X-ray skull does not show any abnormality of the pituitary fossa.

(Continued from page 41)

Anterio-posterior / Lateral
view / view
(Photographs of radiographs may be affixed here)

SPECIAL RADIOLOGICAL PROCEDURES

Intravenous urography
Cystography/pneumocystography (indirect placentography)/other
Amniography/pneumo-amniography/other
Aortography/retrograde femoral arteriography/other
Hystero-salpingography
Cephalo-pelvimetry

INDICATIONS FOR RADIOLOGICAL CEPHALO-PELVIMETRY

- Primigravidae :
1. when the foetal head cannot be made to engage by the 37/38th week
 2. when pelvic contraction is suspected on vaginal examination
 3. when she is short in stature (less than 5 ft. 1 in.)
 4. when the presentation is breech
 5. when she is elderly (more than 40 years old)

Multiparae : with a bad obstetric history (difficult labour/obstetric intervention—Forceps/Caesarean/other ; still-birth/neo-natal death/other)

All women with disease of the hip, pelvis or lower spine.

(The form used by the author to record findings on an x-ray film. Where possible photographic reproductions of the original films are obtained. A space is provided to affix these.)

Isotope Technique in Physiology

BY DR. R. K. PAL, D.Sc.(Edin.), M.B.(Cal.), M.R.C.P., F.R.S.E.; F.N.I.

THE isotope technique in physiology has definitely opened up a new field (a) for investigation of many physiological and biological problems which resisted solution so far, (b) for proving definitely or confirming conclusions arrived at by other methods, and (3) for quickly arriving at some definite conclusions avoiding lengthy processes of investigation. In all these cases radioactive isotopes are either administered as such with a suitable carrier or they are tagged to a suitable compound which from the moment of their entrance into the body could be traced through the various phases of metabolism in which they participate until they are eliminated from the body entirely.

Isotopes are defined as elements with the same atomic number (nuclear charge) but with different

atomic weights. Some of them are stable and occur naturally in that state, such as ¹²C and ¹³C, each with atomic number 6. The element carbon occurring in nature is a mixture of these two, where for each atom of ¹³C there are 99 atoms of ¹²C, so that the mean atomic weight of natural carbon is 12.005. Similarly ordinary chlorine is a mixture of ³⁵Cl and ³⁷Cl with its combined atomic weight as 35.46. The other naturally occurring stable isotopes are ¹H, ²H, and ³H for hydrogen, ¹⁴N and ¹⁵N for nitrogen etc.

There is another class of isotopes known as radioisotopes which do not occur naturally so that they give off radiations and in that process they disintegrate spontaneously sooner or later and the period of time during which half the radioactivity is emitted off is known as its 'half life'. The best

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Vitamin B ₆ B.P.C. 1.5 mg.	1.0 mg.
Calcium Pantothenate U.S.P. 3.0 mg.	3.0 mg.
Niacinamide B.P. 10.0 mg.	25.0 mg.
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known examples are ^{131}I with a half life of eight days only and ^{32}P with a half life of 14.3 days only which emit γ rays and β rays consisting of fast moving electrons respectively which can be detected and measured by Geiger counter or sensitive electrometer. Other radioactive isotopes that are used for investigation of physiological and biochemical problems are ^{24}Na , ^{14}C , ^{59}Fe , ^{55}Fe , ^{51}Cr , and ^{86}Rb with half lives as 14.8 hours, 3 years, and 21 minutes, 5 years, 47 days, 26 days and 40 hours respectively.

THE USE OF STABLE ISOTOPES

Ordinary water contains about 0.02 per cent of its hydrogen in the form of ^2H or deuterium whose combination with oxygen as 'heavy water' can only be concentrated by fractional distillation. On electrolysis of this heavy water ^2H is given off which is utilized for the synthesis of organic compounds, e. g. if chrotonic acid is treated with this ^2H in the presence of a catalyst (platinum or nickel) there is production of butyric acid with two atoms of deuterium. If this labelled compound is given to an animal its course from its ingestion to its ultimate fate through the stages of digestion, absorption and metabolism can be easily traced. In a different way the heavy water thus obtained may be mixed up with ordinary water and injected into animals whose different tissues may be taken out for analysis of the ^2H content in water formed on combustion by collecting and measuring its density and refractive index.

Similarly ^{15}N which exists as an admixture to only a small proportion of 0.368 p. c. in natural nitrogen, may be used for the synthesis of any labelled amino acid, which when given to an animal, may not only be traced from the stage of its ingestion to its penultimate fate of excretion, but also can be estimated as the nitrogen content of the various tissues or body fluids or even in the urine and faeces by mass spectrometer (Schönhauser, 1946). Sometimes a compound or a molecule may be labelled with even two different isotopes, the best known example being, the amino acid leucine labelled with ^{15}N and ^3H , which is treated by the body exactly in the same way as normal leucine.

THE USE OF RADIOISOTOPES

But by far the radioisotopes excel in importance,

nowadays the stable isotopes for investigation of various problems in physiology and biochemistry. The following are the examples:

^{131}I is selectively taken up by the thyroid tissue and the uptake emitting γ rays can be detected and directly measured by G—M counter placed close to the neck or indirectly by measuring the share of the dose excreted in urine during the phase of distribution, which can be taken advantage of for investigation of the functional state of the thyroid gland (Hamilton & Soley, 1939, 1940): the amount of radioactivity residing in the tissue at a particular moment after administration of the radioisotope or substances labelled with them can also be detected by autoradiography. The uptake of ^{131}I by the thyroid gland can very well be detected by this simple technique of photography (Lacassaque and Lattes, 1925 and Axelrod and Hamilton, 1947). Quite recently ^{131}I -labelled dyestaff has been used for testing liver function (Rose Bengal Test) by injection of 5 μc of ^{131}I labelled dyestaff intravenously and then determining the uptake of the dye by the liver and the gall bladder (Oddie *et al*, 1955). Curt von. Euler and Holmgren (1956) found that local injection of labelled thyroxine in the pituitary inhibited the release of ^{131}I by the thyroid but there was no effect when it was injected locally into the hypothalamus or median eminence, showing thereby that thyroxine inhibits T.S.H. secretion only by direct action on the ant. pituitary.

The unstable ^{32}P as a tracer emits an electron giving off a beta ray, which penetrates only a few millimeters and so is confined largely to the skeletal tissues which concentrate this isotope, and especially and selectively the growing teeth, bone, bone marrow and its cellular elements. The increased rate of cellular reproduction is reflected in the ^{32}P uptake not only by the bone marrow but also lymph nodes and spleen in cancer, leukaemia etc. with increased metabolic rate that is shifted to nuclear protein as against the lipid fraction, which is indicated by proportional ^{32}P -uptake. It is also used as a tracer to investigate into the rate of turnover of cellular material or metabolites in normal tissues. By this method it has also been possible to confirm the important role of phosphorus in carbohydrate metabolism. Moreover although the brain and the liver contain equal amounts of phosphorus in organic combination, the liver has been found to take up as much P per unit of time as the brain. Similarly newer light has been thrown by this technique on

lipoid and protein metabolism particularly the nucleoprotein metabolism and mineral metabolism of bone and growing teeth.

^{32}P (Hevesy *et al*, 1954) and ^{51}Cr (Grey and Sterling, 1950) were introduced into red cells *in vitro* by physical or chemical process. Ten ml. of heparinized blood freshly drawn are incubated with 0.1 or 0.2 ml. of a stock solution containing 10 μc of the isotope (say ^{32}P) with a minute quantity of phosphate as a carrier. After about a quarter to one third of the isotope has entered the cells the blood is cooled and the isotope which still remained in the plasma is washed away with several washings of the ice-cold physiological saline, the washed cells are suspended in isotonic saline or in the plasma (Reeve and Veal, 1949). The red blood corpuscles so labelled are utilized for measurement of red cell and blood volume.

Tudhope and Wilson (1955) have very nicely compared the relative efficiency of R. B. C. with different radioisotopes ^{32}P , ^{86}Rb , & ^{51}Cr *in vitro* by incubating blood with the isotopes at 37°C with constant rocking after which the activity of the plasma was measured and the uptake of the isotope by the red cell was calculated. After 3 hr. the plasma was removed, the cells were washed resuspended in stored plasma and again incubated at 37°C with rocking. At intervals the radioactivity of the plasma was measured and the leakage of isotopes from cells calculated.

The uptake of ^{86}Rb at 3 hr. was 33.3% and that of ^{32}P , 40%. The leakage of ^{32}P from red cells was greater than ^{86}Rb at one, two and three hours—the difference being highly statistically significant. The mean leakage of ^{86}Rb at 3 hr. was 7.8% and that of ^{32}P was 18.3%. So ^{86}Rb is a useful agent for labelling red cells and can be used with advantage for measurement of total red cell volume as with similar up-take as ^{32}P , rubidium-label is more stable and possesses γ -radiation so that the distribution of ^{86}Rb -label within the body may be followed by means of an external counter. As compared to this ^{51}Cr under the same experimental conditions, showed an up-take of 81% in 1 hr. and leakage was less than 1%. Although having a disadvantage of requiring a scintillation counter for its measurement it has several advantages as a red cell label too, as compared with ^{86}Rb and ^{32}P . The up-take of ^{51}Cr , by red cells is much more rapid and more complete and the label is also very

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Proteolysed Liver Extract Equivalent to
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Proteolysed Yeast Extract 60 gr.

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Folic Acid	3 mg.
Vitamin B ₁₂	12 mcg.
Vitamin B ₁	40 mg.
Vitamin B ₂	3 mg.
Vitamin B ₆	2 mg.
Calcium pantothenate	5 mg.
Nicotinic Acid amide	60 mg.
Choline Chloride	300 mg.
Methionine	300 mg.
Copper Sulphate	0.05 mg.
Calcium Glycerophos.	3 gr.
Pot. Glycerophosphate	2.5 gr.
Manganese Glycerophosphate	0.25 gr.
P. A. B. A.	10 mg.

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much stable. Read, Wilson and Gardner (1954) have shown that the mean half life of ^{51}Cr -tagged red cells within the circulation is 26 days whereas that of ^{86}Rb is 40 hr. only. So this prolonged survival of ^{51}Cr -tagged cells can be utilised to make repeated estimations of red cell volume if injections of unlabelled red cells are given.

Similarly ^{14}C has been used with advantage for investigation of the incorporation of proteins by various organs by injecting tyrosine labelled with it showing highest concentrations in the intestinal mucosa, kidney, plasma proteins and liver even after three days (Greenberg, 1944). After introducing ^{14}C -glucose in low concentration intestines of dogs under phenobarbitone anaesthesia Pears and Smyth (1956) by estimation of total radioglucose and radiolactic acid obtained from the venous blood and intestinal loop for over a period of 30 min. showed definitely that in view of Wilson and Wiseman (1954) that some fraction of glucose absorbed by the intestines may appear as lactic acid which is smaller *in vitro* than *in vivo*. Similarly after injection of 2 μc of uniformly labelled ^{14}C -glucose intravenously in anaesthetized dogs Coxon and Robinson (1956) have assessed the relative contribution of particular regions of the body to overall metabolism by measuring the activity of CO_2 in the arterial and venous blood of hind limbs and expired air during first 2½ hours, specific activity of the femoral venous blood CO_2 was considerably less than the arterial CO_2 and the gain of ^{14}C - CO_2 by limb is probably due to break down of radioglucose into ^{14}C - CO_2 relatively rapidly in the body and the arterial ^{14}C - CO_2 thus derived, coming into isotopic equilibrium with that of the tissues of the limb during this period.

Cardiovascular diseases: VII. Hypertension and hypertensive vascular disease.

Schaaf, R. S., *A.M.A. Archives of Internal Medicine*, U.S.A., 93: 411-424, March 1954.

Among the newer agents used in hypertension are Veratrum viride, hexamethonium, and Rauwolfia serpentina. Veratrum viride has been used in carefully regulated doses (so as to reduce nausea and vomiting to a minimum) and has successfully reduced both systolic and diastolic blood pressure, with improvement in signs and symptoms in some cases. Both the Veratrum viride itself and a mixture of the active hypotensive alkaloids of the crude drug have been employed. Hexamethonium salts are also valuable in hypertension and it is stated that almost all patient can take them at some level which will afford a practical and sensible reduction of the blood pressure level without excessive toxicity. The action of methonium salts is greatly strengthened by salt-poor diets which furnish a daily intake of 0.2 gm. of sodium, or less. A study has shown that after a significant blood pressure reduction induced by the use of hexamethonium, the cerebral and coronary volume flows are maintained during the period of blood pressure reduction. A preparation of Rauwolfia serpentina, an Indian shrub with extensive pharmacological use in Asia, has given moderate to marked reductions in both the systolic and diastolic blood pressure levels.

REFERENCES

1. Axelrod, D. J. & Hamilton, J. G. (1947)—*Amer. J. Path.*, 23, 389
2. Coxon, R. V. & Robinson, R. J. (1956)—*J. Physiol.*, 133, 48P *Ibid*, 131, 125-26
3. Euler, Curt von. & Holmgren, Bjorn (1956)—
4. Greenberg, G. (1944)—quoted by Hevesy, G
5. Grey, S. J. & Sterling, K. (1950)—*J. Clin. Invest.*, 29, 1604
6. Hamilton, J. G. & Soley, M. H. (1939)—*Amer. J. Physiol.*, 127, 87
7. *Idem* (1940)—*Ibid* 131, 135
8. Hevesy, G. et al (1944)—*Act. Med. Scand.*, 116, 561
9. Laccasague, A. & Lattes, C. (1925)—*J. Radiol. Electrol.*, 9, 1
10. Oddie, T. H. *et al* (1955)—*J. Clin. Invest.*, 29, 34, 95, 106, 1049
11. Pears, B. J. & Smyth, D. H. (1956)—*J. Physiol.*, 134, 7P-8P
12. Reeve, E. B., & Veall, N. (1949)—*Ibid*, 108, 12
13. Schoenheimer, R (1946)—*The Dynamic State of Body Constituents*, Harvard. U. Press.
14. Tudhope, G. R. & Wilson, G. M. (1955)—*J. Physiol.*, 128, 61 P
15. Wilson, T. H. & Wiseman, G. (1954)—*ibid*, 116-125

MEDICAL GASES

By

A STAFF CORRESPONDENT OF INDIAN OXYGEN LTD.

THE system of colouring medical gas cylinders used in India until now has helped the medical profession to identify the cylinders containing the gas that they wished to use. The colours adopted, however, have not corresponded with those in many other countries; as a result there have been accidents arising from mistakes of identification of gases by foreign doctors or by those trained overseas.

As a positive step to remove the danger, Government of India have amended the Gas Cylinder Rules so that the colour markings of medical gas cylinders in India will conform with the international system. The new standard identification colours are tabulated below.

Indian Oxygen Ltd., leading manufacturers of medical gases, have announced that repainting of cyclopropane, nitrous oxide, medical oxygen and medical oxygen/carbon dioxide mixture cylinders to comply with the new colour scheme will be undertaken by all works of Indian Oxygen Ltd. from April 1st, 1958. As cylinders are returned to the works for refilling, they will be repainted at no extra cost to the user.

During the period of changeover it is inevitable that a certain risk will arise from users having cylinders of different colours but containing the same gas. To minimise this period, it would be advisable for all users of medical gas cylinders, as soon as possible after April 1st, 1958, to ensure that every cylinder in their possession is changed to its new

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correct colour. Stocks of gases in cylinders painted with the old colours should be used up as quickly as possible, but if this cannot be done within two months, it is strongly recommended that any remaining gases in cylinders should be sacrificed and the cylinders sent in for refilling when it will automatically be repainted.

All personnel whose duties associate them with the storage, transport, maintenance or handling of medical gas cylinders will have to be made fully conversant with the new colours. To facilitate this coloured wall-cards showing the new colours may be had free from all branches of Indian Oxygen Limited.

STANDARD IDENTIFICATION COLOURS FOR MEDICAL GAS CYLINDERS

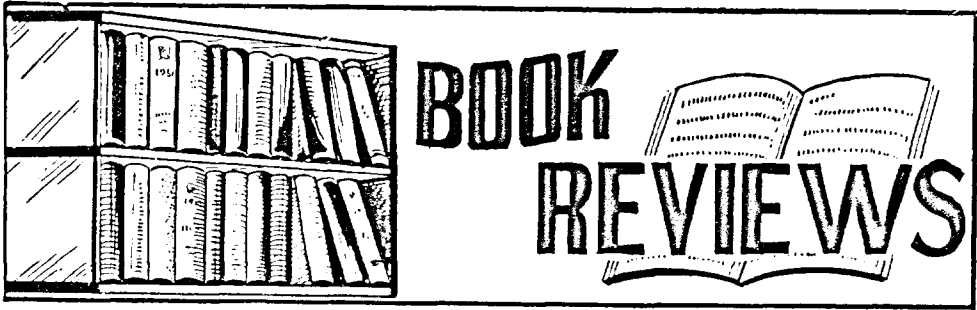
G A S		CYLINDER COLOURING	
Name	Symbol	Valve End	Body
Air	Air	White and Black	Grey
Carbon Dioxide	CO ₂	Grey	Grey
Cyclopropane	C ₃ H ₆	Orange	Orange
Ethylene	C ₂ H ₄	Violet	Violet
Helium	He	Brown	Brown
Nitrogen	N ₂	Black	Grey
Nitrous Oxide	N ₂ O	Blue	Blue
Oxygen	O ₂	White	Black
Oxygen/Carbon Dioxide Mixtures	O ₂ + CO ₂	White and Black	Black
Oxygen/Helium Mixtures	O ₂ + He	White and Brown	Black

The colouring at the valve end will extend down to the shoulder; two colours will be in four segments, two of each colour.

MODERN TREATMENT OF TUBERCULOSIS

Foreign Letters—Sweden, *Journal of the American Medical Association*, U.S.A., 154: 359, January 23, 1954.

An interesting feature of the program of tuberculosis treatment in a Stockholm hospital is the inclusion of penicillin in the regimen. The reason is that the director feels that secondary infections may play a significant part in pulmonary tuberculosis, especially when the stage of cavitation has been reached. Certain *in vitro* tests tend to indicate that the combination of penicillin with streptomycin is beneficial by virtue of a synergistic action on the tubercle bacillus. The following four-week treatment program, for adults, is suggested: 1 gm. of dihydro-streptomycin every day, 300,000 international units of penicillin per day, 0.3 gm. of isoniazid in three divided doses, also daily, and 12 gm. of PAS in three or four divided doses. After the four weeks the isoniazid and PAS continue on a daily basis (as during the initial four-week period) and the same dose of streptomycin and penicillin is also given—but only twice a week instead of daily. Alterations in the program are introduced according to the behavior of tubercle bacilli in the sputum, including drug resistance which may appear. Changes in the radiological picture also provide a guide to treatment, and PAS sometimes has to be reduced when side effects appear. The hospital director hopes it may eventually be possible to give a combination of the four drugs named early in the disease with a view to securing earlier healing of lesions by action of nature. Another Swedish physician believes damaging effect of dihydrostreptomycin on certain cranial nerves may be less severe in his country than in other places because of the avoidance of prolonged and uninterrupted treatment with this antibiotic. He prefers dihydro-streptomycin to streptomycin for infections other than tuberculosis because it is less likely to bring about allergic side effects.



PARASITOLOGY — (Protozoology and Helminthology) in relation to clinical medicine with 76 illustrations including six colour plates:

By K. D. CHATTERJEE, Printed at Sree Saraswaty Press Limited, 32, Upper Circular Road, Calcutta-9 by S. N. Guha Ray. Price Rs. 12.50

This profusely illustrated 185-page book printed on quality art paper deals with the clinical aspects of Parasitology. The fact that the author thought it desirable to include 76 illustrations to enhance the value of the text, bears ample witness that he has spared no pains to make the subject very clear to the

reader. The drawings have reproduced well and the colour plates are prettily got up. The book has been divided into four sections. The first is the introductory chapter. It describes the terminology and the general principles of parasitological studies. This is followed by two sections, i.e. Protozoology and Helminthology respectively. In each section the parasites have been classified and described under the following headings: Geographical distribution, habitat, morphology and life cycle, pathogenicity and clinical features, diagnosis, therapeutics and prophylaxis. The last section in the book comprises the appendix and it gives the details of various laboratory

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techniques adopted for parasitological diagnosis. Many of the illustrations demonstrating the life cycle of the parasites have been designed with great care by the author and ably illustrated by Sri Atul Bose, the Artist. The author has taken lot of pains to avoid printing errors which usually have a habit of creeping into any text. Prof. Chatterjee deserves to be congratulated not only on the content of the book which bears an imprint of his erudition and wide experience but also on the personal effort on his part which has made the book devoid of blemishes. Those who practice medicine in the tropics will find in Prof. Chatterjee's book a great wealth of authoritative information as well as a great number of pleasing illustrations which are almost self-explanatory. The price of Rs. 12.50 seems astonishingly reasonable for a book of such quality.

* * * * *

CHRONIC BRONCHITIS EMPHYSEMA AND COR PULMONALE—By C. H. STUART-HARRIS & T. HANLEY. Published by John Wright & Sons Ltd., Bristol, 1957. Price 42 S.

This attractively got up 235 page monograph incorporates the result of research work carried out by a staff of the Department of Medicine of the University of Sheffield in the past ten years. The importance of the subject dealt with cannot be fully appreciated except by those who have lived in any of the big cities of Great Britain for any length of time or have had experience of professional work there, particularly in the winter months.

Chronic Bronchitis and its sequelae comprises a medical and public health problem of great magnitude. This comprehensive study of the subject

is spread out in 11 chapters. The text is illustrated with x-ray pictures, histo-photographs (some in colour) and several tables setting forth the results of the work. Fig. 50 depicts the questionnaire card upon which the answers to a bronchitis survey was recorded is of interest. To practising physicians, particularly those who have to cope with the problem and to research workers on the subject, this book is worthy of reference.

* * * * *

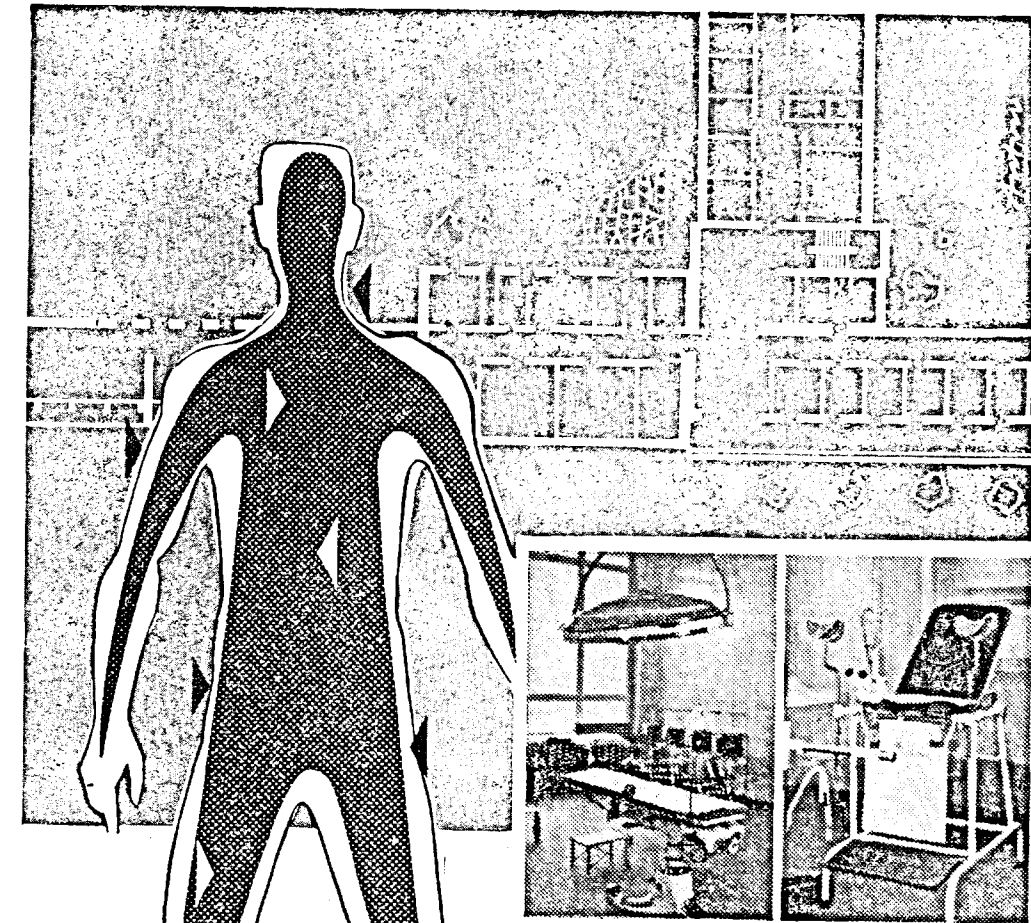
ANÆSTHESIA FOR NURSES—By ERIC GODWIN, L.R.C.P., M.R.C.S., F.F.A., R.C.S., Published by John Wright & Sons Ltd., Bristol, 1957 (Price Not Stated)

This small booklet of 98 pages is an illustrated expanded version of lectures which the author gives to student nurses and pupil midwives. It is not uncommon to find that intelligent students of nursing often ask questions in the operation theatre about anaesthetic procedures. Even if they do not ask them, many are filled with a natural curiosity to know why certain things are being done. The author has taken advantage of this desire on their part and provided answers in this book which is, in effect, a picturesque synopsis of modern anaesthetic procedures. There are several hazards in anaesthesia which can be prevented, and it is desirable for the nursing personnel also to acquire some knowledge about these dangers. Avoidable deaths as from inhalation of stomach contents, obstructed or distressed respiration, transfusion of wrong blood, and other mishaps can be prevented. Although the book may appear to be elementary, in actual fact, it contains quite a lot of valuable information and practical hints. This book is therefore worth-while having in all libraries intended for the use of the nursing staff in any hospital.

Growth failure in school children: further studies of vitamin B₁₂ dietary supplements

Wetzel, N. C. and others, *Journal of Clinical Nutrition*, U.S.A., 1: 17-32, September - October, 1953; through: *Journal of the American Medical Association*, 154: 271, January 16, 1954.

The results of a School Nutrition Study are presented that support the conclusion that vitamin B₁₂ exerts a "growth-promoting-effect" when given as a dietary supplement to children in growth failure. The general benefits derived from the use of vitamin B₁₂ dietary supplements in the present study were felt to be well beyond the point at which recovery responses developed in individual children. The most immediate reactions were noted by the personnel of the medical and nursing departments, but almost simultaneously by teachers in the classrooms who became aware that at least some of the pupils were improving in behavior, attitude, and scholastic work or that they were showing less strain and fatigue or, greater interest and attention, and hence better all-around progress than before. Expressions of similar import were offered by parents. The fact that the children were well disposed toward the program is attested to by the fine attendance record they made and by their willingness to participate faithfully in the extra routine of tests, measurements, and supplements.



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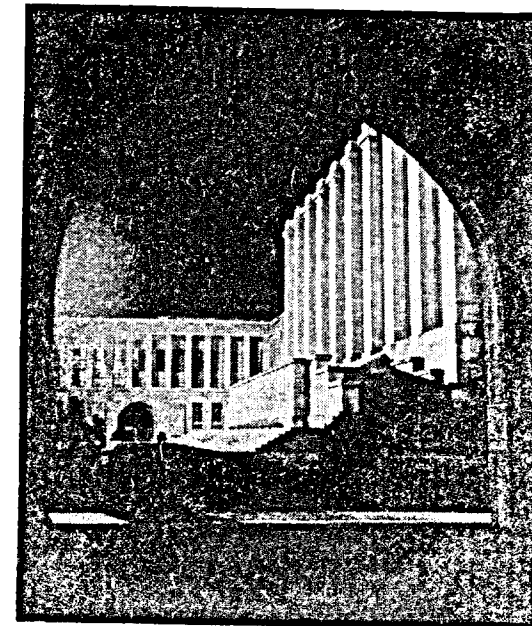
Statement about "Surgical & Medical News" under Rule 8 of the Registration of Newspapers (Central) Rules 1956

- | | |
|--|---|
| 1. Place of Publication | Tanjore. |
| 2. Periodicity of Publication | Quarterly |
| 3. Printer's name | T. S. Gopal Row |
| Nationality | Indian |
| Address | 2235, Bhutgoswamy Vattaram, Manojiappa Street, Tanjore. |
| 4. Publisher's Name | B. S. Amruta |
| Nationality | Indian |
| Address | 2235, Bhutgoswamy Vattaram, Manojiappa Street, Tanjore. |
| 5. Editor's Name | Dr. S. N. Dhananjay |
| Nationality | Indian |
| Address | C/o. Mysore Kirloskar Ltd., Harihar. |
| 6. Names and address of individuals who own the newspaper and partners or shareholders holding more than 1% of the total capital | Sole Proprietor: T. S. Nagaraja Rao |

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Dated: 1—3—1958



Left: A view of the Palais des Nations, W H O Headquarters, Geneva, Switzerland.

World Health Organization's Tenth Anniversary Commemoration & World Health Day Supplement



Right: Patiala House, W H O Regional Office for South East Asia, New Delhi.

WORLD HEALTH DAY 1958

WHAT IS WORLD HEALTH DAY?

ON 7 April 1948, the Constitution of the World Health Organization officially came into force. Each anniversary is now observed as World Health Day and is used by national and local health authorities to interest the people in health needs and to stimulate their co-operation in health action. A definite theme for the observance is selected every year in order to focus public attention on particular aspects of health.

The theme chosen for World Health Day 1958, which also marks the tenth anniversary of WHO, is *Ten Years of Health Progress*. In the observance of the day, however, the stress should be not on the work of WHO but on health progress in general, the achievements of national health services over the last ten years and future programmes and problems of public health which health administrations may wish to share with the lay public.

THE SCOPE OF THE THEME

It is widely recognized today that the success of public health programmes depends to a large extent on the willing and intelligent co-operation of the people. World Health Day can therefore be

made an occasion to give stimulus, especially in rural areas, to health education programmes and to develop an intelligent appreciation of the need for proper disposal of human and animal wastes, keeping the sources of water clean and the control of flies and other disease-carrying insects, etc.

The occasion may also be utilized to make local health services better known to the people and to publicize, through the Press and the radio, information about the health status of the community and its most urgent needs.

ORGANIZATION OF WORLD HEALTH DAY OBSERVANCES

The Organization of the World Health Day observance is basically a responsibility of national and provincial or local health authorities. However, public-spirited individuals and institutions of all kinds (even though they may not be directly concerned with health problems) may take the opportunity to give their assistance and co-operation. In order to avoid confusion and possible duplication of effort they will, of course, normally wish to consult with the official health services in making their plans.

ANTIBIOTICS IN HEART DISEASES

Cossio, P., and Berreta, J.A., 13: 280-291, *Medicina*, Argentina, October, 1953; through: *Journal of the American Medical Association*, 154: 721, February 20, 1954.

The authors report clinical and bacteriological cure of bacterial endocarditis in 38 out of 63 patients who received penicillin alone or in association with streptomycin and in rare cases with some other antibiotics. Penicillin was given intramuscularly in doses of 300,000 units at intervals of three hours for a period of four or five weeks. Streptomycin was given in doses of 0.5 gm. every 12 hours. They also report results in approximately 100 patients with cardioaortic syphilis. It was observed that the Kahn and Wassermann reactions, which were resistant to arsenicals, became permanently negative after daily doses of 500,000 to 1,000,000 units of penicillin for two or four weeks. Negative reactions became positive in one or two weeks from daily doses of 500,000 units of penicillin, and then they again became negative as a result of the treatment. Penicillin failed in advanced cardioaortic syphilis. From a review of the literature the authors believe that the incidence and severity of rheumatic fever has diminished since the introduction of antibiotics. From observations on two large groups of patients, they conclude that recurrences of rheumatic fever and occurrence of suppurative streptococcal infection of the upper respiratory tract complicating rheumatic fever are less frequent in patients who have had antibiotics.

WORLD HEALTH DAY

"Ten Years of Health Progress"

7 April 1958—WHO's Tenth Anniversary

A Statement by
MARCOLINO G. CANDAU, M.D.
Director-General, World Health Organization.

WORLD Health Day this year is also the tenth anniversary of the day when the Constitution of the World Health Organization came into force. It therefore seems a good opportunity for all of us to review the progress towards better health made during the last decade in each country and throughout the world.

There have been great scientific advances—new drugs, new vaccines, new or improved insecticides and better methods of combating and preventing disease.

This new knowledge is being rapidly applied where it is needed. In the last ten years the flow and exchange of scientific information and practical experience have perhaps been greater than ever before. More scientists and health workers than ever before have gone from country to country to learn, to teach and to demonstrate.

Even more important is that an increasing number of people everywhere realize that health is a way of living and thinking, and not merely the absence of disease and infirmity. Governments have come to accept their responsibility for the health of their peoples, and their obligation to provide, besides the classical hospitals and institutions, improved environmental conditions, health care for mothers and children, and safeguards for food and nutrition.

In all this there is nothing very new. For a hundred years or more, advances in the science of healing have been shared freely by all countries, health pioneers have been urging the importance of sanitation, and governments have slowly brought in health legislation and built up health services. The last ten years are remarkable, then, for a general speeding up and extension of health progress

along established lines.

But this is not all. Underlying the accelerated progress has been a profound change in thinking and in method.

At an international health conference held in New York in 1946 sixty-one governments asserted that low health standards anywhere in the world are a common danger, and that health is consequently a world concern and not simply a national concern. Health, like peace, is one and indivisible. They laid down new principles for international health co-operation and embodied them in the Constitution of the World Health Organization, which came into force two years later.

The nations that banded themselves together twelve years ago to set up this world co-operative for health with a programme far out-reaching anything previously attempted have since been joined by 27 others, bringing WHO's membership to 88.

Their action has already brought a number of benefits to all. Rapid pooling of information and experience makes it simpler to contend with diseases like influenza and poliomyelitis, to meet the threat to mental health that grows from modern conditions of life, to adapt medical education to changing needs, and to study emerging problems like that of the hereditary effects of radiations.

Those countries that are struggling to conquer age-old diseases and to build up modern public health services benefit further from the practical help given, in the true "co-operative" spirit, by all countries through the World Health Organization. Ten years of trial and error, of success and failure, have shown

(Continued on page W.H.O.4)

WORLD HEALTH DAY SERIES

The Work of WHO's South East Asia Regional Office*

THE Regional Office for South East Asia was the first of WHO's Regional Offices to come into being. It may be said to have started with the first session of its Regional Committee, which was held in New Delhi in October 1948.

The original Member States were Afghanistan, Burma, Ceylon, India, Thailand and two metropolitan powers—France and Portugal, in respect of Pondicherry and Goa. Later Indonesia, Nepal and the United Kingdom (in respect of the Maldives Islands) joined, making a total of ten Member States.

During 1949 and 1950 the Regional Committee was still in the formative stage, and programme proposals were of necessity mainly formulated in the Regional Office. In the ensuing years, however, the programme began to be developed with the active participation of the Regional Committee and even more so of the national health administrations working in close, daily co-operation with WHO staff at the country level.

The position today is that the Regional Office is accepted as an organic part of the health set-up in the Region in the planning and development of national health programmes.

* * * * *

All the countries represented in the Regional Com-

*This material was prepared by the WHO Regional Office for South-East Asia as a contribution to the ten-year review of WHO's activities which is being prepared at WHO Headquarters for issue at the tenth anniversary celebration, to take place during the Eleventh World Health Assembly in May 1958.

(Continued from page W.H.O.3)

the usefulness and also the limitations of this international assistance. As their confidence grew in the possibilities thus offered for hastening progress, health administrations have also learned what efforts they themselves must make in order to obtain the best results from outside help.

From all this one fact emerges clearly—what, ten

mittee, with similar socio-economic backgrounds, had almost the same health needs and problems.

They were predominantly rural: eighty per cent of the population of the Region lived in rural areas with extremely low living standards bordering often on almost bare subsistence. Public health services, poor in the few urban centres, were almost non-existent in rural areas.

Communicable diseases due to wide-spread insanitary environment were widely prevalent. Malaria was claiming about 100 million victims each year, with about a million deaths. Also, serious malnutrition was wide-spread, and the rate of maternal and infant deaths alarmingly high.

In the health services the bias was on clinical medicine, and there was an acute shortage of technical personnel and essential resources. Many of the countries had recently become independent of foreign rule, however, and the new popular governments were determined to improve the lot of their people as rapidly as possible. Hence WHO became a part of a wide-spread move to improve social services.

As the expansion of basic public health services for such large populations required tremendous resources, a beginning had to be made with immediate short-term programmes, especially those relating to the control

years ago, was little more than fine words on paper has now become a living reality. What was a vision seen only by a few far-sighted men has, with all its imperfections, become a trusted instrument in the service of all countries. And this, I venture to think, will be considered by future historians as one of the most significant factors in health progress in this ten-year period.

W.H.O.4

of communicable diseases, which contributed so predominantly to the heavy toll of morbidity and mortality.

Quite naturally, it became the first task of the Regional Office to supplement these heroic efforts to bring wide-spread endemic diseases under control.

* * * * *

The major WHO programmes during the first two to three years consisted, therefore, of the provision of international teams, with some supplies, for the control of malaria, tuberculosis, venereal diseases, yaws and filariasis.

Most countries in the Region started off with some form of assistance in controlling one or more of these diseases. The method of work, in all cases, consisted of (1) establishing so-called demonstration and training projects in well-defined geographical areas, (2) with the support of national counterparts and other local resources, demonstrating modern methods of control, and (3) training the local staff in these techniques for a fixed period of time, after which WHO assistance was withdrawn.

While assistance in the control of communicable diseases was being actively pursued, pilot activities were started, almost simultaneously, towards positive health. A beginning was made with programmes for improving maternal and child health, which also took the form of demonstration and training projects.

From the outset, the training of counterpart physicians also received major attention; that of nurses started very early (even in 1949 seven nurses were working with WHO demonstration teams), and this was soon followed by the training of auxiliary staff and other technicians. The emphasis, however, in the earlier years remained on training the local personnel that were working with the WHO staff in particular projects.

* * * * *

These and other field programmes developed very rapidly. While 1949 saw 16 WHO-assisted projects with about twenty-five field staff, costing about \$ 340,000, the programme in 1952 jumped to an estimated expenditure of more than four million dollars (including over 2½ million under "Other Extra-

Budgetary Funds") covering 55 projects and utilizing about 125 field staff. By 1956 there were 120 projects, 143 field staff, and a field budget of \$ 4,695,419 (including \$ 1,902,866 under "Other Extra-Budgetary Funds"). The number of fellowships (including those financed by UNICEF funds) also rose from 46 in 1949 to 69 in 1952 and to 101 in 1956.

Altogether, in the first nine years, WHO in South East Asia has assisted with twelve malaria control projects, with ten projects for the control of venereal diseases and yaws, 21 for the control of tuberculosis (including BCG vaccination), 21 for the promotion of maternal and child health (frequently combined with the training of nurses), and with 24 additional nursing projects, as well as with many programmes in other fields.

The shortage of equipment and supplies formed a major obstacle from the very beginning, as most of the necessary medical supplies were not produced within the countries of the Region and had to be imported and paid for in foreign currency. It is noteworthy that UNICEF joined hands with the Regional Office of South East Asia from the very beginning, by providing much needed supplies and equipment, for the demonstration and training projects.

Major achievements of WHO and UNICEF in this field were the joint development of a penicillin-producing factory and a DDT factory in India, yaws programmes, maternal and child health projects and assistance to 3,000 rural health centres.

* * * * *

From 1952 onwards, as a result of experience in the field, it became clear that the control of communicable diseases needed to be developed by means of nation-wide mass attacks, employing a large number of auxiliary health workers under the supervision of qualified physicians. Therefore, demonstration and training projects in communicable diseases gradually gave place to mass programmes, such as those for BCG vaccination, malaria control, and yaws control, in all of which WHO assisted.

Today (mid-1957) the situation is that out of 450 million people exposed to malaria,

W.H.O.5

200 million have been protected, and in the BCG campaign against tuberculosis, 112 million people have been tested and 38 million vaccinated.

As regards yaws, by the end of 1956, 37 million, out of some 77 million living in endemic areas, have been examined and 5 million treated.

Pilot projects in plague, leprosy and trachoma, on the basis of which large campaigns are being planned, are also under way.

In some countries the large-scale national programmes for malaria control are on the verge of becoming eradication programmes. Venereal disease control projects are now also being carried on largely by national personnel.

It is of interest to note that today tuberculosis, which is the most important communicable disease of the Region after malaria, is no longer being tackled through demonstration and training projects but by the extensive development of domiciliary and ambulant therapy with modern drugs.

The large-scale isolation of individual cases at institutions was found completely beyond the financial and technical resources of the countries in this region. Similarly, in leprosy control the emphasis has shifted to active case-finding and non-institutional treatment.

* * * * *

The training of counterpart personnel alone proved insufficient and had to be expanded to assist in training the very large numbers of workers required for mass programmes.

Simultaneously, the promotion of maternal and child health services led to the need for training nurses, midwives, health visitors and nursing auxiliaries—training in which WHO has given large-scale and increasing assistance.

The Regional Director's Annual Report in 1953 lists courses assisted by WHO staff giving training to about 1,850 nurses, midwives and nursing auxiliaries during the period under review; according to his report in 1956, similar courses were given to over 3,700 such workers

Substantial assistance has also been directed towards developing, promoting and expanding nursing and midwifery schools as well as toward providing adequate field experience for the trainees.

All these expanding programmes also needed highly qualified medical personnel in large numbers. The number available was shockingly small: for example, it is estimated that Afghanistan and Indonesia had one doctor to about 60,000 people; India, one to 6,000, and Thailand, one to 7,000.

Because of the scarcity of qualified teachers as well as the costliness of modern medical schools, progress in this vital field has remained slow, although there has been steady improvement during the past two to three years.

WHO has helped by providing professors to set up various departments in medical schools and to train counterpart staff, as well as by furnishing teaching equipment and supplies. Some help has also been given in the preparation and translation of text-books.

With the world-wide shortage of highly trained personnel, the assistance which the Regional Office has been able to render in this field has not been adequate in quantity, although much has been done to improve the quality of teaching through promoting revisions of the medical curriculum and providing field experience in urban as well as rural areas.

* * * * *

Recently the Regional Office has particularly promoted the establishment of full-time departments of preventive medicine and of paediatrics.

Owing to the absence of qualified teachers in preventive medicine, a special arrangement was made with the Harvard School of Public Health to train young national teachers in a specially organized public-health teachers' course lasting two years.

In addition to the assistance given to medical schools, an important project was developed jointly with UNICEF to expand and improve the activities at the All-Indian Institute of Hygiene and Public Health, Calcutta, for providing training in general public health, maternal and child health, public health nursing, sanitary engineering and health education.

In the past three years WHO's role has been directed more and more towards these training programmes. In 1956, in addition to training counterpart teams and organizing a very large number of training courses in different subjects, the Regional Office assisted in conducting 40 refresher courses for about 700 trainees consisting of medical officers, nurses, technicians, sanitarians and other auxiliary workers.

The emphasis has also been shifting from individual communicable disease control towards meeting the more basic needs of the Region—for rural health services, for improvements in sanitation and for health education—and towards integrating specialized programmes into the general public health services.

During the same period, some countries of the Region, particularly India, have undertaken very large national community development programmes, for the strengthening of which assistance is being increasingly provided, especially through the development of rural health centres.

* * * * *

The need for reliable vital and health statistics in the Region (even today, for three out of the seven countries, it is not possible to give birth and death rates) is recognized by governments, and WHO has helped during the last few years in efforts to improve and develop statistical services.

The absence of such statistics makes it very difficult to give any pronouncement on the health of the people. Speaking generally, however, it may be said that during recent years there has been an upward trend in the birth rate and a downward trend in the death rate, while the infant mortality rate has not shown much improvement in most countries.

It is generally assumed that while death rates keep declining, morbidity continues almost unchanged. This picture is changing somewhat, as a result of the extensive malaria control programmes.

Any further substantial reduction, however, is not likely until the programme for environmental sanitation takes hold. This will still take many years.

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(Continued on page W.H.O.8)

As the awareness of positive health has increased among the populations and large amounts of international and bilateral assistance have become available, governments are being compelled to expand their health services to the utmost of their resources. Quantity is very often provided at the sacrifice of some quality, and the lack of adequate supervision at all levels has become a matter of grave concern.

Provision of counterpart personnel by governments has much too often been inadequate so that full use has not been made of the training possibilities provided by highly skilled WHO experts. Sometimes no counterparts at all have been provided, and in other cases, they have proved too poor to make suitable leaders.

Apart from WHO, there have been other important organizations working in the field of health in South East Asia. Of the United Nations family, the chief one with whom WHO has worked very closely indeed is, of course, UNICEF.

Through the bilateral programme of the U. S. A., much public health support has also been made available, of which the assistance being given to malaria control (and more recently malaria eradication) is the most noteworthy.

A large number of fellowships and a variety of experts as well as some equipment and supplies have been provided through Colombo Plan arrangements. The Rockefeller Foundation and the Ford Foundation have also substantially assisted in medical education and training.

With all these organizations the Regional Office has worked very closely in order that each should supplement the other in the promotion of the common objective of improving health in South East Asia.

* * * * *

The most important achievements in the first nine years of WHO assistance may be summarized as follows:

- (1) Expansion of programmes for the control of a major communicable diseases; their development into mass programmes and their gradual integration into the concurrently expanding general public health services.

WORLD HEALTH DAY SERIES

Ten Years of Health Progress in India

By

D. P. KARMARKAR,

Minister of Health, India.

"THE health of all people is fundamental to the achievement of peace and security. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition"—this is the fundamental principle in the World Health Organization Constitution.

This principle is accepted by all modern States. The Constitution of India, in Article 47, states that "The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties...."

Maintenance and promotion of national health is the prime concern of a Welfare State. In building India into a Welfare State it has been realized that in terms of resources for economic development nothing can be considered of higher importance than the health of the people, which is a measure of their capacity and the potential of man-hours for productive work. The First and the Second five-year plans have laid due to emphasis on developing, mobilizing and utilizing this main natural resource, health.

** ** **

The Republic of India is predominantly an agricultural and rural country. It extends over an area of 1.26 million square miles. Every type of climate may be found in the sub-continent but generally it is tropical.

India has a population of 382 millions (1955 estimate), 82.7 per cent of whom live in 5,58,089 villages. The population in the age-group 0 to 24 years is proportionately high, i. e. 55.71 per cent. The proportion of people who live beyond middle age is very low.

A village or a group of villages form the basic unit of organization—village council or panchayat. More than 26 per cent of the villages have fewer than 500 inhabitants. Communication in rural areas is still inadequate.

Though literacy is rapidly increasing, at present only 16.6 per cent (1951) of the people are literate. The annual income of an Indian is estimated to be Rs. 267 (1952—53) or about US \$1 per week. The income has increased by 14 per cent.

With the available limited resources, people have shown in the past decade that they can improve their

(Continued from page W.H.O.7)

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| (2) Improvement of medical education generally. | especially nursing personnel and health auxiliaries. |
| (3) Emphasis on paediatrics, especially paediatric education, as well as the promotion of maternal and child health services, and—what is more important—the integration of these specialized services into general public health. | (6) Active promotion of vital and health statistics. |
| (4) The establishment of departments of public health and preventive medicine, and the integration of the teaching of preventive medicine into the general curricula of medical schools. | (7) Promotion of health education by the training of key personnel and the demonstration of field techniques at the country level. |
| (5) Tremendous strides in the training of personnel, | Perhaps the most important achievement of all, however, has been the fact that the governments in this region now look upon WHO as their natural collaborator and partner in all efforts to improve the national health services. |

W.H.O.8



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standard of health with the assistance of governments and other agencies.

HEALTH ADMINISTRATION

All the fourteen States in India are practically autonomous in matters relating to health. 'Health' is a primary responsibility of the States. The Central Government has direct responsibilities only in respect of international health, quarantine and standards of higher technical education.

However, the Central Health Ministry gives advice on health and allied matters, co-ordinates health programmes and policies, supplies technical information and equipment, and provides financial and other assistance which promotes in general the health and well-being of the country.

The Central Council of Health, established in 1952 under the Constitution, consists of all State Health Ministers and serves as a co-ordinating and collaborating body in the field of health. Various central boards and committees function as national bodies in specific areas of health and provide advice, guidance and leadership in that branch of public health.

The Central Ministry of Health is advised by a Directorate composed of technical experts. It is a composite organization responsible for both preventive and curative work. The pattern of health services in the States is somewhat similar though standards vary.

At one time the curative and preventive health services in the States were kept separate but today, except a few, integration of health services has been achieved.

HEALTH BEFORE INDEPENDENCE

No yardstick has been evolved to measure positive health of a nation; however, certain vital data makes it possible to evaluate a nation's health. In India it is rather unfortunate that there has been no proper machinery for collection and compilation of such data but the gross figures, though incomplete, do provide some significant information when compared over a period of years.

*figures within the brackets for the ten-year period 1941-1951.

The estimated death rate for the ten-year period 1941-1951 is 27.4 per 1,000 population. In the same period, for every thousand live births, 175 infants died.

The maternal mortality was estimated to be 20 per thousand live births and ill-health associated with child bearing ran to almost 20 times this figure.

The average annual numbers of deaths in the country during 1940-1947 from fevers alone accounted for 57.5 per cent of the total deaths and another 5.1 per cent was claimed by cholera, smallpox and plague.

The average expectation of life in the ten years 1931-1941, was 27 years. This was the state of health in India 10 years ago.

The causes of such a low state of health are lack of hygienic environment, lack of proper housing, lack of safe water supply, lack of facilities for removal and disposal of human wastes, under- and mal-nutrition, lack of adequate medical care—especially in rural areas—and, above all, lack of proper health education of the public.

PROGRESS MADE

In the past ten years India has made considerable progress in the prevention and control of disease and the promotion of health of the people in general and mother and child in particular.

Though the progress made does not bring the health standards of the nation anywhere near the advanced countries of the West still there has been, undoubtedly improvement in the general health of the population as evident from the latest available vital data.

Now, only about 20 to 22 (as against 27)* persons die in a year out of one thousand population and 140 to 145 (as against 175)* infants die out of one thousand live births.

The expectation of life is estimated to be 32.5 years for males and 31.7 for females during the decennium 1941-1951—an increase of five years over the period 1931-1941.

These results are in no small measure due to the efforts of Governments, who have been striving to the best of their ability to develop health services, quantitatively as well as qualitatively, since the attainment of independence. To these achievements WHO and other international organizations have made a considerable contribution.

FIRST 5-YEAR HEALTH PLAN

Rupees 131 crores¹ were allocated for health out of Rs. 2,356 crores provided in the First Five-Year Plan. In the circumstances that existed then only 5.5 per cent of the Plan provision could be made for health, which did not allow setting up of physical targets in the field of health at a higher level. The Plan included more than 50 schemes.

It is, however, gratifying to note that the targets in most of the major schemes were achieved within the Plan period and a total of Rs. 101 crores were actually spent.

The expenditure increased from Rs. 11.7 crores during the first year of the Plan to Rs. 36.6 crores in the last year.

The main emphasis of the first health plan was on the preventive side—provision of safe water supply and sanitation, control of diseases like malaria, filariasis, tuberculosis and leprosy, providing rural health services, provision of health services for mothers and children, and the training of health personnel. Curative services were also improved and extended.

WATER AND SANITATION

The provision of a safe and adequate water supply is the basic requirement in India, where large number of persons succumbed to water—and filth-borne diseases.

In the first Five-Year Plan Rs. 14 crores and Rs. 16 crores were provided for the rural and urban water supply schemes respectively. The Technical Co-operation Mission (T. C. M.) participated in the programme by providing an assistance of about \$2.5 millions.

Up to March 1956, 196 urban water schemes and

¹ one crore = 10 millions.

58 drainage schemes, at a cost of Rs. 8.3 crores, were carried out. On the rural side, 134 schemes were approved. WHO is helping in some of the rural pilot projects by providing technicians.

This national programme has caught the imagination of village people, especially where water is either scarce or contaminated.

After the National Water Supply and Sanitation Programme was sponsored by the Central Government, the Central Public Health Engineering Organization in the Directorate-General of Health Services was set up to give technical advice, guidance and assistance to the States. Several States have taken steps to strengthen or create similar units at the State level.

In order to provide trained personnel to man these schemes Master Degree courses in public health engineering have been set up in different universities and institutions.

MALARIA CONTROL

Malaria has for centuries been one of the most formidable health problems in rural India. It not only produced death and disability among people but also produced great economic loss. It sapped the very interest in life of villagers. The Planning Commission gave top priority for the launching of the Nation-wide Malaria Control Programme, which became possible due to the availability of DDT for civilian use and the success achieved by WHO/UNICEF demonstration pilot projects.

The TCM (USA) came forward to provide equipment, DDT, insecticides like dieldrin and transport, etc. required for the national programme.

WHO and UNICEF also assisted the programme in providing training of personnel and plant for manufacturing DDT.

In India 200 million people used to be exposed to the disease. The first Five-Year Plan aimed to protect 125 million people and the scheme was launched in April 1953.

At the end of the Plan period (1956) 133

During the Plan period a total expenditure of Rs. 18.5 lakhs was incurred, of which Rs. 11.4 lakhs were accounted for by grants and Rs. 6.6 lakhs by education and research. Grants-in-aid were offered for 205 family planning clinics maintained by voluntary organizations, State Governments and local bodies and 147 clinics were opened during the Plan period.

EDUCATION AND TRAINING

Training of health personnel received a high priority in the programme for developing health services especially in view of the shortages which existed among the medical and auxiliary personnel.

During the Plan period the number of medical colleges increased from 30 to 42 with an increase of admissions by a thousand.

The number of doctors has increased from 59,000 to 70,000, registered nurses from 17,000 to 23,000, midwives from 18,000 to 28,000 and health visitors from 600 to 800.

The training facilities for all these categories of personnel have been expanded with the assistance of WHO, UNICEF, etc.

The All-India Institute of Medical Sciences—which comprises an undergraduate medical college, college of nursing, dental college, postgraduate teaching and research centre, 650-bed hospital and a rural and urban organization to provide facilities for field work—is being established in New Delhi, at an estimated cost of Rs. 4.9 crores, with the assistance of Colombo Plan. The establishment of the Institute has progressed well and the second batch of students have been admitted for training.

RESEARCH

The Indian Council of Medical Research promotes research, provides training for medical research, collaborates in finding solutions for health problems, etc. The work in the field of leprosy has contributed to an understanding of the mechanism of the infection of leprosy and evaluation of special operative procedures for correcting deformities.

Nutritional problems have been given high place in the Council's programme. Seven departments in the existing medical colleges and research institutions

were upgraded during the period for providing post-graduate training and equipping doctors with knowledge and experience for teaching and research work.

LEGISLATION

Legislation for the prevention of food adulteration was enacted in 1954 and will be of far-reaching importance as a beneficial public health measure. The Central Committee for Food Standards and the Central Food Laboratory were established as required by the Act.

The Indian Medical Council Act, 1956, provides for the formation of a committee of post-graduate medical education, to prescribe the standards of post-graduate medical education throughout the country, and for the maintenance of All India Register containing the names of all medical practitioners possessing recognized medical qualifications.

The draft model comprehensive Public Health Act, which will provide minimum uniform standards of procedures with regard to public health in the entire country has been considered by the Central Council of Health and sent to State Governments for consideration.

THE SECOND FIVE-YEAR PLAN

The general aim of health programmes during the second Plan is to expand existing health services to bring them within the reach of the people and to promote a progressive improvement in the level of national health. The specific objectives are:

- (i) establishment of institutional facilities to serve as bases from which services can be rendered to the people both locally and in surrounding territories;
- (ii) development of technical manpower through appropriate training programmes and employment of persons trained;
- (iii) as the first step in the improvement of public health, institution of measures to control communicable diseases which may be widely prevalent in a community;
- (iv) an active campaign for environmental hygiene; and
- (v) family planning and other supporting programmes for raising the standard of health of the people.

(Continued on page W.H.O.15)

"Ten Years of Health Progress" 7 April 1958—WHO's Tenth Anniversary

A GLANCE BACK AND A LOOK AHEAD

BY DR. H. VAN ZILE HYDE*

The diseases that killed our great-grandfathers, often while they were still young, are decreasing in importance almost everywhere, and in some countries are now nothing but faint memories.

Yet the technical and scientific advances which are transforming or will transform the lives of people everywhere subject the human frame to new stresses. As infectious diseases are conquered, other health problems come to the fore.

Taking a backward look at the accomplishments in health made over the last ten years, Dr. Hyde finds reasons to believe that the future nevertheless holds a sure promise of new and happier things.

THE ten years just past have demonstrated that man now has at his command the knowledge and the will to eliminate infectious disease from the world. The accomplishment thus far is great; the promise greater.

The story of infectious disease goes back to the beginning of man's life on earth. The bones of children in the earliest graves and the mummies of

ancient Egypt testify to the age-old struggle between man and infectious disease. The course of history has often been changed abruptly by mysterious epidemics sweeping over great areas of the earth—the Black Death of the Middle Ages, typhus and influenza in our own times.

Every adult among us has suffered repeatedly from infectious disease and will again. Millions upon

*Dr. H. van Zile Hyde is Chief, Division of International Health, Department of Health, Education and Welfare, United States Public Health Service. He has an outstanding record both in the national and international health fields. During the war he was Senior Surgeon of the United States Public Health Service. In 1945 he was appointed Chief of UNRRA's Middle East Office, and later served as alternate US Member of the Health Committee of UNRRA.

Dr. Hyde has been closely connected with the development of the World Health Organization since the earliest days, and has attended all except two World Health Assemblies as a member of the United States delegations. He served as Chairman of the WHO Executive Board in 1954-55.

(Continued from page W.H.O.14)

The health schemes included in the second Five-Year Plan have been prepared with great enthusiasm which, however, has had to be tempered with a sense of reality because of limited financial resources and lack of trained personnel. Even so, provision has been made for the continuance and intensification of a number of schemes included in the first Plan and for 61 new schemes for implementation by the Central Government or with Central assistance during the period of the second Plan.

The total outlay on health programmes in the second Plan will be in the neighbourhood of Rs. 267 crores. This no doubt compares favourably with a total provision in the first Plan of Rs. 131 crores. As, however, the total allocation for the second Five-Year Plan is Rs. 4,800 crores, the percentage of allocation for health schemes in the second Five-Year Plan works out the same as for the first Plan, namely 5.5.

In comparison with Western standards, our achievements at the end of the second Five-Year Plan will still be inadequate for a country like ours with its teeming millions, many of whom will continue to live in ignorance and poverty for some time to come. But in spite of the limitations imposed by financial considerations, there is no doubt that India has made some significant progress within the last decade in the field of health.

Progress, however, is a comparative term and it has to be judged in the fierce light of what exists in spite of it. The needs for creating healthful living conditions are so vast that over a number of years we shall scarcely be able to make a dent in them—but, with the co-operation of the people, it is hoped that a good stride will be taken toward greater and speedier progress.

millions of persons over the globe are weakened even today by persistent chronic infectious disease.

This is the past and the present, but it need not and will not be the future.

THE DISEASES THAT ARE DISAPPEARING

The roots of man's impending triumph over infectious disease reach back a hundred years. Then it was that man learned that most of the diseases with which he was familiar are caused by living organisms so small that they are invisible to the unaided eye.

Quite rapidly then, he developed means for destroying these organisms, through antiseptics; for interrupting their growth and spread, through sanitation; for building internal defences against them, through nutrition and immunization; and for destroying them by medical treatment even after they had infected him.

In those limited areas of the world in which it has been possible to apply this knowledge intensively, much of the burden of infectious disease has now been lifted. In such areas, the public has fully forgotten the terrors of the past—cholera, plague, smallpox and yellow fever.

Parents no longer fear most of the communicable diseases commonly associated with childhood—measles, diphtheria, scarlet fever, whooping cough—because, if they occur at all in these favoured areas, they rarely kill.

Malaria has been eradicated, tuberculosis is fast disappearing, and very recently there has been major advance against poliomyelitis.

The list of triumphs is a lengthy one. However, the respiratory infections—the common cold, influenza, and pneumonia—are still widely prevalent. There is, however, growing evidence that these and similar infections that are still wide-spread will eventually be brought under control. All that may be needed in some cases is more intensive laboratory research to fill gaps in the knowledge already at hand.

SPREADING KNOWLEDGE AND TECHNIQUES

Thousands of projects applying modern control

methods have been carried out in the jungles, over the deserts, in the great and crowded cities, on every continent and in every country. From this vast experience it has been learned that the available methods can bring about control under conditions found anywhere, if skilfully adapted and energetically utilized.

Disease-carrying insects have been eradicated in the valleys, on the mountains, along the shores; injections of penicillin, vaccinations against smallpox, tuberculosis and other diseases have been given to hundreds of millions of persons, even in the remotest and in the most squalid corners of the earth. This experience has given rise to the expectation of eradication.

The nations of the world are indeed now pledged to work together to bring about the complete eradication of malaria from the earth in the next ten years. It is expected that eradication of other diseases will follow.

This—the extension of knowledge and action from the few to the many—is the significance of the past ten years of health progress. This is the hope and promise that it has brought.

The stage that has been reached thus far in the conquest of infectious disease has not come about by luck but by hard work and effective organization. In the process, hundreds of research centres have been developed; millions of health workers have been trained; hospitals and health centres have been built both in cities and in remote areas; people have formed voluntary organizations to combat sickness through joint action; and governments throughout the world have created national and local health services that increasingly help all peoples to gain health.

NEW PROBLEMS

But the total needs are still very far from being met. Much more growth and extension are urgently needed in order that all may have the degree of protection that is available to an increasing but yet far too small segment of mankind.

Moreover, the mass control of infectious disease does not solve all health problems nor end disease.

As the control of infectious disease advances other problems and diseases take on new importance.

Since infection tends to kill early in life, its wide-spread control means that more people survive into the older age-groups. This creates problems involved in providing employment and care for ever larger numbers of elderly people. It means, too, that the non-infectious diseases that are associated with later years become more common and prominent—heart disease, cancer, diabetes, arteriosclerosis.

THE STRESSES THAT ACCOMPANY PROGRESS

Our ability to control infectious disease has been attained in a period of history marked by wide and intensive scientific and technical progress, accompanied by profound social change. New stresses have been created that lead sometimes suddenly and at other times more slowly to disease and premature death. These new and increased stresses take three basic forms—chemical, physical and social.

Development has been so rapid that the true nature and effect of many of these stresses remain thus far a mystery. Man must now deal increasingly with these problems as he completes his mastery of infectious disease.

The chemical stresses to which we are exposed are legion, and mounting rapidly. Thousands of industrial plants discharge chemical wastes into the rivers and streams that provide our drinking water. Hundreds of chemicals that have not been adequately tested for their effect on man are added to food in order to preserve, colour and flavour it.

More than 1,000 million pounds of chemical insecticides are used annually in the world in the cultivation of fruits and vegetables, exposing millions of workers to the effects of these chemicals. Some 3,000,000 pounds of gases are discharged into the air of a single large American city each day by motor vehicles and industry.

CHEMICAL MIASMA

Man takes huge amounts of inorganic chemicals in self-medication. Each year there are produced in one country alone 800,000 pounds of a single sleeping drug and over 60,000 pounds of an awakener, as well as 14,000,000 pounds of aspirin—enough to make 19,000 million five grain tablets.

More recently people who do not appear to be

happy either asleep or entirely awake are taking tranquillizing drugs to keep them in between.

How dangerous is this chemical miasma? It is only possible to give partial answers.

There are studies that suggest a possible relationship between minute traces of certain of the metals that occur in food and heart disease and high blood pressure.

Other research suggests that fats in food may be related to these diseases.

More than 300 different chemicals are known to produce cancer in animals. There is evidence that cigarette smoke may contribute to the development of lung cancer in man.

Polluted air has killed people in London and in an American town.

These facts indicate something of the problem in the chemical sphere that emerges as infectious disease recedes.

The physical environment is creating new hazards as industry becomes more concentrated, as greater speeds are attained in the air and on the highways as new sources of energy develop.

Accidents—particularly automobile accidents—are emerging in many countries as one of the leading causes of death. Rehabilitation of those who have been injured is becoming a major public health activity.

MECHANIZATION AND AUTOMATION

In pace with the technical developments that give rise to increased chemical and physical threats, the social environment is becoming progressively more complex. The machines, and institutions created to increase production and facilitate distribution lead to new stresses. The agriculturist—the erstwhile peasant, the farmer, the fellaheen—no longer sustains himself and his family alone in an isolated environment. Today he is increasingly part of an organized community in which he competes and makes his contribution to economic and social progress. He is joining co-operatives, sometimes driving tractors and even in some places automobiles, and educating his children so that they may compete effectively in today's society.

When industry, mechanization and automation are introduced abruptly into a locality changes often come about suddenly, with little time for adaptation. Tradition, customs, taboos, are swept aside unceremoniously by the irresistible assault of progress. Not long ago an airplane made an emergency landing outside a village on a plateau high in the Himalayas. Until that time the villagers had never seen a wheel. One can imagine the shock and strain involved in spanning in one great leap of the imagination and comprehension the full scope of man's millenia of technical development from primitive implements to the airplane!

In this rush of progress man must learn to live with man. The strain is producing its toll. In certain of the highly industrialized countries as many as one half of the total available hospital beds are occupied by persons with mental disease, many of whom are victims of this intense social stress. This provides a crude measure of the scope of the problem.

TOOLS THAT CAN CHANGE THE WORLD

As we look backwards, we see that over the years man has made great strides in understanding and controlling infectious disease and in building the organization, as well as developing the personnel, that are needed to accomplish world-wide control.

Increasingly, babies are now born to live, not to die. Increasingly, they can expect long life to the full span of three score years and ten. In the past ten years this great new promise has reached out to become a reality to ever more millions of our fellow men.

But we still see as well hundreds upon hundreds of millions of persons unnecessarily sick, millions dying when they need not do so.

The past ten years of health progress have clearly demonstrated that man has in his hands tools that can change the world, bringing to all men new vigour, health and hope. The future is bright, if the tools are used fully and forcefully and everywhere.

WHAT HAS HAPPENED TO QUARANTINE

By

SIR HAROLD E. WHITTINGHAM*

A CENTURY AGO, harsh and unreasonable quarantine regulations were a constant terror to the traveller and the merchant. Yet they were still powerless to check the great plagues of history.

Only when scientists obtained precise knowledge about the cause and spread of infectious diseases was it possible to find less drastic and more effective ways of preventing epidemics.

IN THE LAST TEN YEARS the countries of the world have agreed on a uniform set of regulations which apply scientific knowledge to give protection against pestilential disease.

Nowadays quarantine has become a mere shadow of its former grim self.

FROM the fourteenth century until the end of the nineteenth quarantine measures were drastic, harsh and stupid, due partly to gross ignorance of the causes and mode of spread of pestilential diseases, and partly to fear induced by the severity of epidemics which spread with commerce to many parts of the world and killed millions yearly in many countries.

THE GREAT EPIDEMICS

Cholera, which had ravaged Asia for centuries, spread to Europe and even to America in severe and wide-spread epidemics between 1830 and the turn of the present century.

The greatest killer was plague (the Black Death spread mainly by the fleas of the black rat and other rodents in close contact with man and his habitations) which occurred in pandemics throughout the world from the sixth century until about 1840 and, during such periods, brought trade and social life almost to a standstill.

The louse-borne diseases, typhus and relapsing fever, were world-wide scourges from time immemorial and pandemics occurred, especially in times of famine and strife, until the end of the First World War, when the louse was incriminated as the carrier of these diseases. The prevalence of these diseases was not surprising when lousiness was general and such a famous scholar as Dr. Samuel Johnson (1709—1784)

averred that no man was healthy unless he had several lice on his person.

Smallpox epidemics had for ages occurred among peoples in all climates, killing or disfiguring countless victims and, before vaccination was practised at the beginning of the nineteenth century, pockmarked faces were as common in Europe as they are in Asia and Africa today.

One of the great plagues of the world for more than two hundred years was yellow fever, first recognized as a disease entity in the seventeenth century. The tropical and sub-tropical regions of the Americas were subject to devastating epidemics, while serious outbreaks occurred as far away from the endemic centres in West Africa and the Americas as Spain, France, United Kingdom, Italy and the southern United States.

Yellow fever took deadly toll of the companies of ships which visited West Africa and tropical America and it was these ships which carried the disease, because they remained infected throughout their journeys by the presence of yellow-fever carrying mosquitoes on board that spread the disease at ports of call.

The term "quarantine" was originally applied in the Middle Ages to the 40 days' compulsory isolation or detention period of persons and merchandise which had been in contact with or exposed to these

*Sir Harold Whittingham was Director-General of Medical Services for the British Royal Air Force from 1941-1946, and Director of Medical Services for the BOAC from 1948-1956. He is Chairman of the Medical Committee of the International Air Transport Association, Chairman of the Air Ministry's Flying Personnel Research Committee, and a Member of the WHO Expert Advisory Panel on International Quarantine. Sir Harold has gained several awards for outstanding researches in hygiene and tropical medicine and for contributions to aviation medicine.

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pestilences. The procedure was adopted with the mistaken idea that these diseases were spread entirely by contagion and that this would dissipate itself over a period of 40 days.

DEATH PENALTY FOR QUARANTINE OFFENDERS

The quarantine practice up to almost the end of the nineteenth century was to refuse the entry to port of infected ships or to keep them in the strictest isolation offshore for some 40 days, and to place their crews and passengers for a similar period in quarantine stations, which were virtually no better than prisons. The ship's goods were exposed on the decks and turned over daily during the quarantine period and, if none of the operators contracted the disease, the merchandise was considered free from infection.

In many ports the procedure was reduced to the simple expedient of locking up and isolating everybody and everything for periods up to 40 days. So strict were these regulations that the death penalty was applied to offenders, such as those communicating with persons in quarantine.

A classical example was the Italian ship 'Matteo Bruzzo' which left Genoa for Montevideo in 1884. Cholera broke out on board during the voyage and permission to land was refused in South America. The ship therefore returned to Italy and was quarantined off a small island near Elba. Not until four months after starting their journey were the passengers and crew allowed to disembark at Leghorn some 78 miles from Genoa.

Such procedure drastically interfered with trade and travel even in the days when life was leisurely and transportation was very slow.

However, no progress was made in alleviating these quarantine conditions until the latter half of the nineteenth century following two conferences (in 1851 and 1859) convened by the French Government and attended by diplomats and physicians of a dozen European States.

MEAGRE SCIENTIFIC FACTS

These conferences showed some enlightenment in the approach to the problem of quarantine. The

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different theories of epidemiology of infections and the value of quarantine were discussed in great detail but, unfortunately, there was not sufficient agreement to establish a convention thereon. It was, however, the first time that the principles and rules for a draft International Sanitary Convention were formulated to promote uniformity in quarantine procedure.

The recommendations made included the freedom from quarantine of ships with clean bills of health, agreed minimum and maximum periods of quarantine for the different pestilential diseases, acceptance of infected ships at ports, and the raising of the status of quarantine stations from prison to hospital standards.

Subsequently, three more international conferences were held. Those of 1866 and 1874 took place in Europe and dealt with cholera; that in 1881 was held in the United States and was concerned mainly with yellow fever.

No conventions resulted from any of these conferences, for as yet scientific facts were meagre.

However, during the next decade, the biological discoveries by Pasteur and Koch regarding germs and disease proved epoch-making and revolutionary. Koch proved in 1884 that cholera was due to infection with a specific germ, but it was not until after the Seventh International Conference in 1892 that the First International Convention, which dealt with the Mecca Pilgrimage, was signed.

PHENOMENAL PROGRESS

Now the interest of governments and health authorities of many States was really aroused and three international conferences were held in rapid succession in 1893, 1894, and 1897, resulting in further conventions regarding cholera and plague. In 1894, Yersin and Kitasato proved that plague was due to a bacillus, while Ogata showed that fleas could transmit the disease, and later the rat was identified as a reservoir of the infection.

In 1903 a convention was ratified in Europe consolidating the four previous conventions, and this was followed in 1905 by a somewhat similar convention in America.

During the first half of the present century

phenomenal progress was made by bacteriological and epidemiological discoveries regarding the pestilential and most of the other infectious diseases. This gave such a fillip to interest in international health matters that in 1907 an international organization called the "Office International d'Hygiene Publique" was established in Paris.

At a conference attended by representatives of 41 countries in 1912, a new convention was approved to replace that of 1903 and in this quarantine practices were made less stringent. Owing to World War I, the Convention did not become operative until 1920, and this was further modified by the 1926 Convention.

THE ERA OF AIR TRAVEL

With the development of international aviation, it became necessary to provide health regulations for this form of transport so, in 1933, the First International Sanitary Convention for Aerial Navigation, based on that of 1926 for ships, was established. These two Conventions were amended in 1944 by the United Nations Relief and Rehabilitation Administration.

Those who had to apply these health regulations practically considered, however, that they still caused much unnecessary delay to trade and travel both by sea and air, particularly as regards the latter. In 1946, a new and more enlightened era started when the World Health Organization, by virtue of its Constitution and other agreements, was given authority to formulate and adopt regulations to prevent the international spread of disease.

It was a favourable time for the World Health Organization to enter the picture of international control of epidemic diseases, for by 1946 the causal micro-organisms of all the pestilential diseases were known, as were also their life histories and modes of transmission, including the agency of insect and animal vectors. In addition, the immunizing powers of the vaccinations against yellow fever, smallpox and cholera had been established, as had the value of certain insecticides and other sanitary measures in dealing with the insect carriers of plague, typhus, relapsing fever, and yellow fever.

LIMITING QUARANTINE MEASURES

There was, therefore, a wealth of relevant facts

(Continued on page W.H.O.22)

available and most of the pieces of the jig-saw puzzle regarding the causes and transmission of these diseases had been fitted into place. What was required now was a practical and realistic approach to the problem of international health control, so as to limit quarantine measures to an effective minimum with the least possible interference with the speed of trade and travel, especially at transit points.

The World Health Organization created an Expert Committee on International Epidemiology and Quarantine to review existing conventions and combine them into a single body of regulations covering the needs of all travellers, including sanitation at airports. As a result, the International Sanitary Regulations were adopted by the World Health Assembly in May 1951, and came into force on 1 October 1952. Certain amendments were made in 1955 and 1956.

These regulations reduced quarantine procedures to a minimum compatible with existing sanitary conditions. The only immunizations made obligatory were those of proven value (namely, vaccination against yellow fever, smallpox and cholera), and reliance was placed on disinfection of persons and goods for protection against the spread of the louse-borne and flea-borne diseases: typhus, relapsing fever and plague. The irksome bills of health were abolished for ships and aircraft, as were the personal declaration of movements during the ten days before arrival at destination, and the taking of rectal swabbings from those arriving from cholera endemic areas was prohibited.

PUTTING THEIR HOUSES IN ORDER

In addition, a campaign was started to encourage health authorities of all countries to put their own houses in order by improving the hygiene and sanitation of airports and the areas around them so that they would neither be foci of infection nor be suitable for the introduction of disease, and by immunizing their populations against certain of the pestilential diseases. This was a very important step in the international control of infectious diseases, and future policy should be based more and more on this, especially if the hygiene and sanitation of aircraft and ships is kept at a high standard.

These improvements in health control have proved fully adequate to limit the spread of infectious

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W.H.O. TENTH ANNIVERSARY

A DREAM THAT MAY COME TRUE

BY DR. AXEL HÖJER*

*Man has never yet discovered the paradise on earth that he has always dreamed of.**But new knowledge and understanding, if wisely applied, can help to make his dreams come true.**In this article, Dr. Höjer pictures a future when a long, healthy and happy life will be the birth-right of every child.*

SINCE ancient times, and all the world over, people have dreamed of a paradise on earth, cattle and green pastures, and the promise of a peaceful, long and happy life.

For centuries travellers sought this paradise in tropical and subtropical lands, but, what they most often found were misery and frightening diseases like leprosy, yaws or malaria. They heard stories of how the envious gods had sent pestilences to carry off half the population at a time. Frequently they found starvation—even now malnutrition is only too common in many countries. Everywhere they found that, to make sure that *one* son should survive to scatter the ashes of his parents, mothers had to go through a dozen childbirths before dying of exhaustion at the age of 30.

A DREAM THAT IS COMING TRUE

Man, like the animals, has instincts and habits

which keep him strong and healthy, or at least alive, until he has produced offspring. But in the last hundred years, and especially during the last ten years, man has forged a new and better instrument for survival, called science.

Scientific experiment has deepened our knowledge and our understanding and even failures and mistakes have taught their lessons.

Better knowledge has brought better health. Life is becoming longer and healthier in place after place, and man seems to have found out how to make his dream of a paradise on earth come true.

Let us see some of the ways in which science has opened up these new possibilities. The principal instruments have been improved health services and health centres, the control of disease, and above all health education.

*Until 1952, Dr. Höjer was Director-General of the Swedish Medical Board. He has since spent five years in India for the World Health Organization, first as Principal of a new medical school in Trivandrum, and then as Professor of Social and Preventive Medicine at Assam Medical College.

In his long career Dr. Höjer has made outstanding contributions to medical science and public health practice, particularly in mother and child care, nutrition, housing and medical and health education. He has been closely concerned with international health questions, and is a tireless worker for world peace.

(Continued from page W.H.O.21)

diseases, and it is hoped that in the near future further relaxations may be possible with the improvement of world health.

Nowadays quarantine is rarely imposed. Infectious cases are isolated in hospital and contacts placed under surveillance—they have their liberty provided that they report to the health authorities any illness occurring within fourteen days.

During the last decade, the pestilential diseases have been pretty well confined to a very few places where

they are endemic, and even in those places there has been a marked decline.

This satisfactory state of affairs is due to a number of factors: the development of highly efficient, organized medical and health services; wider use of immunizations and the introduction of powerful insecticides and better techniques of application. Even more important perhaps has been the overall improvement in hygiene and sanitation linked with health education of the public and better standards of living generally.

HEALTH CENTRES

Expectant mothers visit health centres to make sure that their pregnancy is proceeding normally. After birth, infants are brought to the health centres so that their growth can be watched and any difficulties dealt with. Trained health visitors from the centres go into the homes to give help and advice. After the first year the children's health is again checked by experts. The same holds true for pre-school-age children, schoolchildren and adolescents. The experienced eye of the expert detects, in good time, potential causes of ill-health before they produce evil effects.

The watchword of public health services is prevention.

Health services are concerned with health in industry, in sport and in old-age. They are ready with help and advice whenever an individual is worried about his health. Essential to all these activities are efforts to improve people's knowledge on health matters.

Health education of the public is a powerful instrument and is particularly important for politicians, journalists, parents and teachers.

THE HEALTH TEAM

The modern health movement requires the combined work of a health team of doctors, nurses, technicians of many kinds and auxiliaries who are joined by pharmacologists, veterinarians, engineers and other specialists. Today, almost everyone is concerned in one way or another with health work—or ought to be.

How do young people become members of such a health team? Doctors generally have had a training period of at least six years and up to ten if they wish to specialize. Nurses, after their ordinary schooling, are trained from three to five years or longer if specialized, while auxiliaries, after an elementary school education, are trained for from one to two years.

These health workers are able to draw upon a great body of scientific knowledge but even more will be needed before full health can be won. There are many diseases but only one state of full health.

THE RULES OF HEALTH

An important part of the work of these health teams is to teach about health habits—those of the individual, the family, the community and the whole state. Nowadays, these rules of hygiene have become very complicated. Here are a few examples:

The agents of infectious disease, such as protozoa, bacteria or viruses, are hiding in human beings, in domestic animals, or in other hosts or media which are part of man's environment. A whole science has been evolved to protect humanity against them.

One method is to increase human resistance through vaccination. Each country must decide what vaccines are to be used and when. In some countries the programme starts at the very dawn of life, with BCG vaccination against tuberculosis. This is followed by the triple vaccine against diphtheria, whooping cough and tetanus and, subsequently, by polio and smallpox vaccination. All these are given before school age. In some regions cholera vaccination is the most important.

INSECTS THAT CARRY DISEASE

Insects such as the malaria mosquito have been attacked with insecticides during the last ten years throughout many parts of the world in an attempt to eradicate the diseases they carry. One of the principal tasks of the World Health Organization has been to initiate and co-ordinate such campaigns and to help make them successful. The present world-wide malaria eradication campaign sponsored by WHO is one of the most dramatic instances of this type of work.

On the other hand, the disease organisms which exist in water, in the soil or in the air are fought through cleanliness. Many of these escape from the body of a sick person through the nose and mouth when he coughs, sneezes or spits, or from a sore place on his skin, or with his bodily excreta. This can happen during the incubation period of the disease even before the person feels sick, while "carriers" can spread the disease organism without themselves being ill.

There are also about 70 infectious diseases that we have in common with animals, especially domesticated ones, and that we catch from them in much the same way.

Cleanliness is therefore the first health rule. Keep clear from secretions and excretions; don't infect other persons or pollute the environment.

EATING HEALTHY FOOD

From the study of what are called "deficiency diseases" we have learnt little by little about all the various amino-acids, minerals and vitamins which must be present in our food to keep us strong and healthy. As yet, we do not know enough about the composition of various foodstuffs to make the best choice, but we do know enough generally to prevent undernourishment and nutritional diseases. In the main, the nutritional problems of today are practical problems of education as regards diet, of agricultural production, and of transport.

The United Nations Children's Fund has made a contribution of the first order by distributing powdered milk for mothers, infants and small children, particularly in populations which do not obtain enough good protein food. This, however, can be only a temporary measure and a permanent solution must be found in the local production of the right foods. In this field the Food and Agriculture Organization is active.

PREVENTING ACCIDENTS

In earlier times accidents were caused by wild animals, human violence, or natural catastrophes such as floods and earthquakes. Although these are still ever-present dangers, particularly at certain times and in certain regions, today there are other health dangers due mainly to technical advances. These include atomic radiation which menaces both the present and future generations, road accidents, train accidents and air accidents. There are also the accidents which happen in the home through fire and through the misuse of chemicals and medicines.

It is one of the duties of the public health team to impress upon the general public and also upon the law-makers the need to take every possible precaution against such calamities. Parents have a particular responsibility here.

A HEALTHY MIND

An important part of public health work is concerned with mental balance and mental hygiene.

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The more complicated daily life becomes, the harder it is for the young to adjust their behaviour to it. No wonder that we have more and more "difficult children".

By studying their reactions at special consultations we are beginning to learn more about mental hygiene. It will soon be a most important part of the work in all health centres to spread the principles of mental hygiene and thus help the individual to create good mental habits. Only in this way can we hope to have well-adapted citizens in a united world where conflicts of interests in the beginning will still be numerous.

EXPERTS AND THE NEW WORLD

There are some people, calling themselves realists, who tell us that we need not pay special attention to health problems because these, they allege, will be automatically solved in the process of technical and economic development. In a well-planned and prosperous economy, it is certainly easier to avoid infections, malnutrition and the other evils that follow poverty and distress. This is true, however, only for an enlightened, educated and disciplined population.

The new world has to be built with the help of many experts, but the health experts are among the most necessary if a long, healthy and happy life is to be made possible for all mankind.

Among the international organizations with responsibility for building a better world, the World Health Organization ranks high. During its first ten years it has achieved some startling successes. For example, in certain areas of the world, endemic yaws has been eradicated by one injection of penicillin for each person treated. Equally, the cycle of malaria infection has been broken in many places by spraying homes and other buildings with insecticides, such as DDT and, in several regions, malaria has already been eradicated. Such successes are encouraging.

In the long run, however, an even more important task is to build strong health services everywhere, served by sufficient health centres and medical teams to make the general public "health conscious". In this the support of teachers, journalists and politicians is needed.

(Continued on page W.H.O. 25)

W.H.O. TENTH ANNIVERSARY

Why We Live Twice as long as Our Grandfathers

BY PROFESSOR MARCIN KACPRZAK*

We would be shocked and horrified if we could perceive with our own eyes and noses the living conditions in Western Europe a few generations ago. As pictured by Professor Kacprzak they are unparalleled by anything existing today anywhere in the world.

Tracing the progress made in our own days, the author gives prominence to the growth of a new humanism in medicine. Instead of simply writing a prescription or performing an operation, doctors now look at the "whole man" and try to prescribe for his total well-being.

NOT so very long ago there was frightful poverty in towns and rural areas alike. People were badly fed and lived in slums. Children under ten years old laboured in factories for as long as twelve hours a day, and men and women had to work far beyond their physical capacity. The average life-span was about forty years and the death rate varied between 20 and 40 per thousand. Twenty per cent of the babies born died during their first year. In those days, the benefits of medicine were reserved for an infinitesimal part of the population.

This was the situation only a hundred years ago, and in Western Europe—in the countries which were considered as being in the forefront of progress.

Today, in this same part of the world, a new-born child has a good chance of living for seventy years; general mortality is about 8-12 per thousand inhabitants (nearly one quarter of what it was a hundred years ago). And only between two and four children out of every 100 do not reach their first

birthday. Nowadays, therefore, certain Europeans may expect to live twice as long as did their grandfathers.

What then has happened? The first explanation that comes to mind is that enormous progress has been made in the field of medicine. A number of diseases that were previously considered as incurable can now be successfully treated, and many people who used to be regarded as hopeless cases are now restored to health.

Then there are all the new medicaments (sera, insulin, sulfonamides, antibiotics, and other products which combat disease) which enable physicians to prolong human life.

A GREAT CHANGE

Surgery, too, conquers new fields every day. A hundred years ago, even abdominal operations were very risky and no one dared touch the brain, the lungs or the heart. All that has changed.

*Professor Marcin Kacprzak has been Rector of the Warsaw Medical Academy since 1953. He was previously Professor of Hygiene, and Dean of the Institute for five years. In these capacities he has taught medical statistics, epidemiology and social medicine to generations of medical students in Poland. He has taken part in international health work both with the League of Nations Health Organization and with the World Health Organization. In May 1957, he was awarded the Leon Bernard Foundation prize in recognition of his outstanding contribution and practical achievements in the field of social medicine.

(Continued from page W.H.O. 24)

NEW PROBLEMS ARISE

The realization of this aim is not easy. In every country the same problems present themselves in different ways. As one disease is eradicated, one problem solved, others grow in importance. A longer life

brings with it special problems connected with old age.

The lesson of the last ten years of health progress is nevertheless clear. Health for all is no longer an unattainable ideal, but an everyday reality well within man's grasp.

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Parallel with the progress in medicine, pharmacy and surgery, there has been a great change in the living conditions of large masses of people. Life has become easier, children remain at school instead of going to the factory, and men and women work shorter days. More of the heavier work is done by machines, and factory hands are no longer exposed to the same risks as formerly.

The improvement in social and economic conditions has been accompanied by better feeding. Today, in the countries of Europe, very few people really suffer hunger. There are still, of course, some who are undernourished or badly nourished because the quality of their diet is not always what it should be—but there is no comparison with the misery of a century ago, when even dry bread might be lacking and periodic famine took its toll in human lives.

These better living conditions have been a natural outcome of raising the general educational level of the people, who have thereby learnt to realize their needs and to demand reforms which in turn have meant better health.

THE "GOLDEN AGE" OF DISEASE

An improvement followed in housing and sanitation. It is difficult for us to imagine the horrible state of industrial towns and large cities in the first half of last century: vehicles pushing their way through thick mud and filth; water taken from foul-smelling rivers into which was poured all the garbage and waste matter of the towns.

It was the "golden age" of infectious diseases—tuberculosis, typhoid, dysentery, and the rest, for the towns, the houses, and even the hospitals provided ideal conditions for their spread. Twenty to thirty per cent of all deaths were due to such diseases, whereas they are now responsible for not more than 2-3 per cent of general mortality.

In the world of today not only are living and working conditions better, but attention is also paid to the building of pleasant houses, refuse is collected in a rational manner, and towns are supplied with safe water. In addition, the population in general has better defences against serious infectious diseases.

NEW MEDICAL PROBLEMS

Among the different factors which, during the past

hundred years, have helped change living conditions for the better, social medicine must not be forgotten. Indeed it has often been assigned the task of palliating defects in the organization of society and of repairing the damage caused by the injustices of a system.

As soon as it became possible to obtain free medical care new medical problems arose and some hitherto little-known factors made their appearance. It was found that people tended to become careless about their health. They called in the doctor too late, so that certain diseases became a heavy burden on the community.

Social insurance finances had to provide large sums for the treatment of chronic diseases. These are diseases affecting mainly the least favoured classes; they are not always fatal but they influence the productivity of their victims who often become invalids and sometimes remain so to the end of their days.

Today, social medicine is adopting new methods in the battle for health. One of the most important is early detection of disease while cure is still in some degree possible. During illness, attention is also paid to the material situation of the patient and his family, and when he has recovered, efforts are made to place him in employment which will not cause a relapse.

THE ROLE OF THE PHYSICIAN

The advent of social medicine has also transformed the role of the physician. Nowadays, the treatment of a patient means more than simply performing an operation or writing a prescription. The physician must see the man as he is, the whole man, must watch for the innumerable signs that reveal the influence of his environment. The patient brings with him into the consulting-room his family, his work, his surroundings—even his past and sometimes that of his forebears. He should be able to leave in possession of his own future and that of his children as revealed to him by the physician.

These are all aspects of the new humanism in medicine, the ever-increasing attention paid to the man and not to the "case" about which there is so much talk these days.

Humanity's greatest achievements are nothing if they do not serve to make human life easier, richer

(Continued on page W.H.O. 28)

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Manufacture of Gaseous Anaesthetic Equipment in India

BY G. S. MUNDKUR

NO review on this subject is complete without a brief history of the development of anaesthetic apparatus outside India that contributed to the cause of anaesthesia in this country. In 1799 in the U. K. James Watt constructed the first nitrous oxide container or the "Gas Machine" as he called it, for Humphrey Davy; this consisted of a gasometer with an impermeable silk bag attached from which he could inhale the gas. In 1844 Horace Wills introduced nitrous oxide anaesthesia for dental extractions in the same country.

In 1867 Dr. C. R. Cotton interested Dr. Evans in his nitrous oxide apparatus. Dr. Evans came to England from France in 1868 and gave a demonstration of his apparatus using a bladder with the patient breathing through a tube of large calibre held in the mouth.

In 1868 Dr. Edmund Andrews combined oxygen with nitrous oxide and this method has been followed since then. In 1876, Clover introduced his nitrous oxide and ether apparatus and the use of this combination has become universal for general surgical cases.

In 1892, Sir Frederic Hewitt introduced a practical gas oxygen apparatus; the principle employed was that whilst the gas and oxygen bags were maintained at equal pressure by foot-key adjustments, the regulating stop-cock and mixing chamber governed the amount of supplementary oxygen.

In 1899 the S. S. White Dental Manufacturing Company produced the first American gas oxygen apparatus following the plan devised by Hewitt. In 1909 in the same country Arthur E. Guedel devised the first gas/air apparatus and McKesson one year later perfected the first intermittent flow apparatus with an accurate percentage control for both gases. About the

same time in the U. K. Boothby and Cotton introduced their water sight-feed apparatus which employed reducing valves to give constant measured flow of gases. In 1917 Coxeter in England produced an apparatus for Dr. Boyle which consisted of a water sight-feed and ether bottle, both fitted with rubber bungs, all connections from one to the other being made with rubber tubing. This apparatus since then has been altered, improved and redesigned to measure accurate flow of gases and to incorporate a system flexible in control to administer the gases with ether/trilene/chloroform/fluothane.

In 1925, Walton introduced in the U. K. an intermittent flow apparatus which consisted of two bags with automatic controls cutting off the supply of gas to them when full and an accurate mixing valve. Apparatus with water depression type of flowmeters, closed circuit machines, special apparatus for analgesia have since been produced.

The history of attempts to produce gaseous anaesthetic apparatus on a large scale in India starts during the last war when imported supplies were not adequate and therefore a few components for the Field Type Boyle Apparatus were made and supplied to the Army. About the same time a number of accessories such as rebreathing bags, Magill tubes, etc. were also manufactured.

It is not out of place to mention here that the first nitrous oxide manufacturing plant was erected in India in 1943 to meet the urgent demand of the Army. Prior to the installation of this plant, nitrous oxide was imported from the U. K. in bulk cylinders and decanted into smaller service cylinders.

After the war, even the manufacture of the few

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and fuller. Similarly medical science must recognize the need to link its practice with the life of each human being and the surroundings in which he lives. This is how medicine really becomes "social medicine".

The responsibility is not that of the doctor alone—the new concept must be understood and supported by society as a whole in order that medicine may exercise its full influence on human lives and play its full part in building a better world.

components of the apparatus died a natural death as the imported equipment cost much less. In the meantime the demand for the apparatus has been steadily rising with the increasing application of nitrous oxide in anaesthesia. Since Independence, the Government of India in order to encourage indigenous industry has been slowly restricting the import of surgical goods and this step has again helped the manufacturers to produce apparatus in the country. Due to the British influence in the past, hospitals in India have been using mostly apparatus designed in the U. K. and therefore anaesthetic apparatus such as the Boyle and Walton sets are very popular here.

Importing only the essential components such as rotometers, regulators and vaporisers, these sets are now assembled with locally manufactured trolleys,

tubings, etc. At the moment only the Boyle type is produced in India by Indian Oxygen Ltd. as the other types are not yet so popular in this country.

Another step towards self-sufficiency is the manufacture of antistatic rubber accessories, production of which has now been planned. Besides this, anaesthetic sundries, such as Laryngoscopes, Water Airways, Magill Forceps, etc., are also being manufactured; judging from technical and professional standards, these compare favourably with the imported makes.

India has just made a beginning in the manufacture of medical apparatus and in the not too distant future she will be in a position to produce a full range of anaesthetic apparatus and accessories to meet her growing demand.

BRITAIN IS THIRD-LARGEST CONTRIBUTOR TO W.H.O.

The United Kingdom, in terms of money, is the third-largest contributor to the World Health Organization (WHO). This point was brought out by the British Minister of Health, Mr. Derek Walker-Smith, at the World Health Day celebration in London on April 12.

The United Kingdom, Mr. Walker-Smith said, had played an important part and made a useful contribution in the 10 years of WHO's existence. Although, in terms of money, the United Kingdom was the third-largest contributor, "we do not rate our contribution solely, or even primarily, in money terms.

"We have supplied to WHO many of our experts in varied fields of preventive and curative medicine. We have placed at its disposal our facilities for training many hundreds of medical and other health workers from all corners of the world".

The Minister concluded: "It is in this context of co-operation for the common good that WHO makes a contribution to the fast-moving nuclear age in which we live."

* * * * *

PENICILLIN AND VITAMIN DEFICIENCY

Queries and Minor Notes, J.A.M.A., U.S.A., 152: 564, June 6, 1953.

A reply to the question whether supplemental vitamins are indicated with prolonged oral penicillin therapy, as in rheumatic fever prophylaxis, follows:

Oral penicillin produces only temporary changes in the intestinal flora, mainly by eliminating some of the gram-positive components, such as some strains of fecal streptococci. Within several days after penicillin therapy is begun, suppressed intestinal organisms begin to grow again. Even when oral penicillin is administered continuously, organisms in the bowel are much the same as those present before the antibiotic was given. Penicillin would not be suspected of having much effect on bacteria that elaborate vitamins. No vitamin K deficiency has been seen as a result of prolonged oral penicillin therapy. Unlike Aureomycin, oral penicillin does not produce increased urinary excretion of riboflavin. The acute glossitis sometimes caused by penicillin is due to a direct irritant effect, and usually occurs when the drug is administered topically such as in troches or lozenges. It rarely occurs when penicillin is swallowed as in a tablet.

It would not appear necessary, therefore, to administer supplementary vitamins to patients who are receiving penicillin orally, even for long periods.

HELPING TO DEFEAT THE 'FLU

158-3-3 Manufacture of Vaccine in Britain

An outbreak of influenza swept across the world last year. One of the means by which modern science attacks the disease is vaccination. In this article a London correspondent, Leonard Rule, tells us how the special vaccine necessary is being made by English firms.

ANYONE could start a conversation almost anywhere in the world by asking: "Have you had the 'flu?" A very large proportion of the answers given in 1957 would have been "Yes." The 'flu was epidemic throughout the world — or *pandemic*, as medical people call it. To North China has fallen the very doubtful honour of being recognised as its starting place. The scientists engaged in research into influenza — there is a World Influenza Centre just outside London — labelled the outbreak "A (Singapore) 1957," because that is the place from where they received specimens. That label means that the disease was of the kind known as 'Type A.' It seems that there are three main types of influenza virus called, respectively, 'A', 'B' and 'C', with a number of sub-groups in each.

The progress being made by medical research workers in combating the disease depends to some extent on finding out exactly the characteristics of each kind of influenza. At present, vaccines can be made for each of the strains. They are by no means completely effective, but they help — and if the vaccine is to achieve any success at all it must be made from the same strain that it is meant to deal with, or one closely related to it.

TWO DIFFICULTIES

When an outbreak of 'flu is reported, the research workers get busy on specimens of the virus to find out which kind it is. When the outbreak reached Singapore in February of last year some specimens of the virus were flown to the World Influenza Centre near London. Firms making pharmaceutical products were interested because, if the epidemic spread, they would need to make vaccines which to attack it. Two firms got specimens from the Centre. They then grew cultures of the virus from which to make further cultures for the preparation of a vaccine. In the meantime the disease had spread throughout the Far East and was beginning to show up in other places.

Now there are two special difficulties about making vaccines for influenza. One is that the process takes

time. It may be almost three months from first obtaining the strain before the vaccine is ready in quantity — not much help to the early sufferers, but that cannot be avoided. The second thing is that as an outbreak of 'flu spreads it may change, or '*mutate*', as the scientists say. So that a vaccine prepared to help protect people against one form of it may be of little use when the disease arrives.

One of the firms decided, on the advice of their specialist doctor in charge of virus research, to take the risk and manufacture the vaccine. It looked as though the disease would reach Britain, but no one could be sure. And it might "mutate" on the way so that their work might be wasted. The doctor and his staff had spent nearly three months in preparing samples of the vaccine so that production could begin as quickly as possible if a favourable decision was taken. He gave his advice at ten o'clock on a Friday morning in July and the board of the firm gave him its decision to go ahead with production at five o'clock that afternoon. That was pretty quick work on a matter which might possibly cost them some thousands of pounds and bring in nothing. But the decision had to be made quickly or else it would be useless.

A PUBLIC-SPIRITED GESTURE

The procedure for making the vaccine is that the virus is grown — in fact, it is grown in fertile chickens' eggs — and then killed. After that it is purified and some other things are added to it before it is ready for use. First, then, the firm had to get large quantities of fertile eggs, which are not too easy to obtain at that time of the year. One egg will produce enough virus to make vaccine for from 3 to 6 people. However, their regular suppliers gave them every possible help. Secondly, they had to build up a stock of the live virus with which to inoculate the eggs. At the peak of the work they were using about 6,000 eggs a week (which was as many as the plant could then handle). It takes 2 or 3 days for the virus to grow inside the egg, and then a further three weeks is needed for the other processes. So that it was well into August before the first lot of vaccine was ready.

CARDIO-VASCULAR DISEASES IN EUROPE

Advisory Group in Copenhagen 21—25 April

Diseases of the heart and of the blood vessels have been steadily becoming more frequent in Europe and today top the list in most European countries as a cause of death. The World Health Organization (WHO) is convening a group of experts to advise its Regional Office for Europe on what contribution international health action in Europe can best make towards combating these diseases.

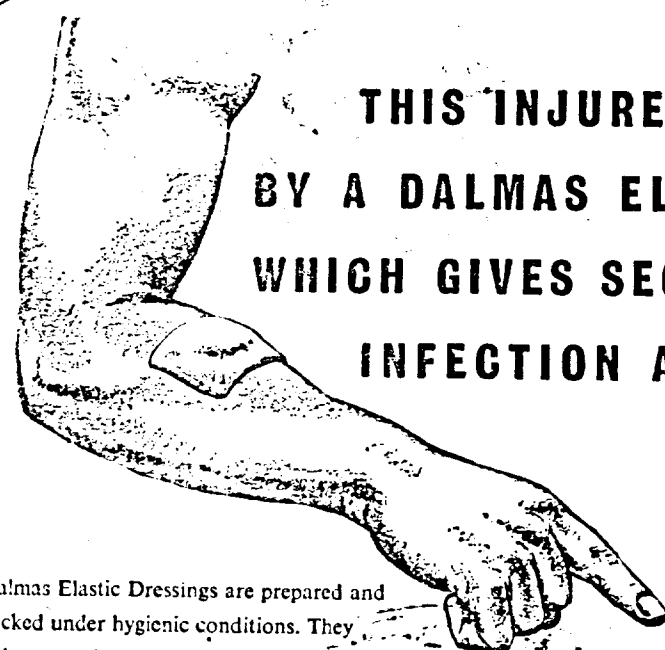
The increase of cardio-vascular diseases is part of a general picture in which infectious diseases—tuberculosis, whooping cough, syphilis, poliomyelitis, malaria, etc.—are on the decrease. The following figures show death rates per 100,000 of population in 1954 from all infective and parasitic diseases and from all forms of cardio-vascular disease.

	Infective and parasitic diseases—Both sexes	Cardio-vascular diseases	
		Male	Female
AUSTRIA	47.8	490.2	487.4
BELGIUM	35.4	485.9	442.2
DENMARK	14.4	430.4	420.1
FINLAND	51.4	393.4	412.8
FRANCE	44.1	395.7	395.7
GERMANY (Fed. Rep.)	27.6	407.1	394.0
ITALY	38.0	362.5	375.1
NORWAY	23.2	363.5	391.2
NETHERLANDS	14.4	315.0	313.1
SWEDEN	17.4	483.0	488.1
SWITZERLAND	33.2	443.3	474.6
UK: ENGLAND & WALES	24.8	588.1	579.7

At a glance, the figures show that roughly 10 to 20 times as many people die of cardio-vascular disease as of infectious disease. A closer look reveals some important differences: For example, in all three columns the rates for England and Wales are a good deal higher than those for the Netherlands. While in general the male death rate from cardio-vascular diseases is higher than the female, this is not so in Sweden, Switzerland, Finland, Italy or Norway. The reasons for such differences are as yet not clearly understood. As possible causes for cardio-vascular diseases, lack of physical exercise, excessive eating of animal fat, the stress and strain to which the modern business man is subjected, heavy smoking and heavy drinking have all been incriminated. But, in general, conclusive evidence is still lacking at present. While it is true that cardio-vascular diseases often attack old people (there are many more old people living today than formerly), the adult at his most productive period in life is a frequent victim. Cardio-vascular diseases in Europe thus present a public health problem of the first magnitude.

To study these problems, and particularly to advise WHO in Europe on what action it should take, twelve eminent European specialists are meeting in Copenhagen from 21 to 25 April. They represent the fields of clinical medicine, epidemiology, genetics, social medicine and public health. The meeting will take place in the WHO Regional Office for Europe.

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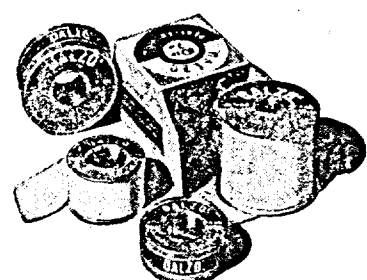


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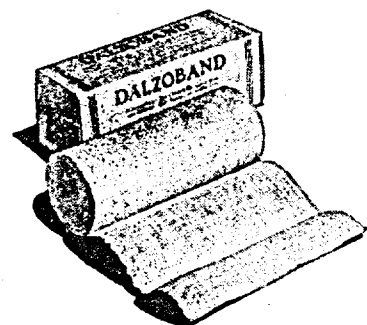
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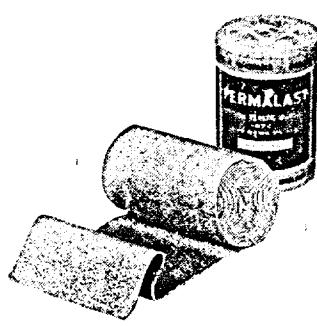
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Dalzoband Bandages (5 medications). An Unna's zinc paste type bandage which is always moist. These medicated bandages are wound loosely round the affected part and covered with a Dalzoflex bandage applied spirally, size, 6 yds. x $3\frac{1}{2}$ in. Medications include Zinc Oxide, Ichthammol, Urethane, Calamine or Coal Tar.



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Permalast Bandages—The efficient cotton elastic bandage, light, porous and washable. Firm support without restriction of circulation. Permalast is economical and long-lasting. Widths: 2 in., $2\frac{1}{2}$ in., 3 in., $3\frac{1}{2}$ in., 4 in., 6 in. Fully stretched 5 yards long.

Enquiries should be sent to:—

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