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Epidemic Hemorrhagic Fever of the Far East, or Endemic Hemorrhagic Nephroso-Nephritis

A survey of the Russian and Japanese literature on epidemic hemorrhagic fever coordinates the various unknown or little known facts which medical research in the two nations brought together during many years of study on opposite sides of the Amur River.

Epidemic hemorrhagic fever or endemic hemorrhagic nephroso-nephritis is an obscure virus disease with well-marked clinical and pathological features. It is localized at present to the Far East where it gained in significance because the U. N. troops are constantly exposed to the disease. It is marked by flushed face, high fever, purpura, urinary symptoms and general toxicosis. It usually ends in complete recovery, with perhaps some temporary damage in the renal function.

Epidemic hemorrhagic fever of the Far East first became known in the early 1930s in Southeastern Siberia, in the Primorskaya district located between the Amur River and the Pacific Ocean. Under different names the same disease was subsequently discovered and redescribed by Japanese army surgeons when their expanding military forces met with the epidemic in the northeastern provinces of Manchukuo. Recently, the disease was also observed in various parts of Korea, and, allegedly, in Japan proper.

An important factor in fatality rate is the nature of EHF, which may occur in four clinical types (grippo-typhoid, gastrointestinal, uremic and mengingo-encephalitic), each having a progressively worse prognosis and increasing death-rate. The mortality rate has been variously reported in different years, as ranging from 3.3 to 31.8 %.

EHF occurs sporadically throughout the year, and in comparatively small seasonal epidemics. It has been mostly observed in semi-rural or chiefly rural surroundings, among people living in the open in tents or barracks. It is endemic in the shrubby, marshy, swampy regions along the rivers of Northeastern Manchuria and the Russian Far East, and it may occur in entirely isolated districts.

Seasonal prevalence varies with the locality and with the meteorological and climatic conditions which favor activity of the rodents and their mites, the supposed vectors and reservoirs of EHF. In Northeastern Manchuria and Korea outbreaks of the disease occur twice a year: one in the spring (April-May), and another in the late summer and early fall, with the highest peak of incidence in September-October. Near the 50th parallel, epidemics of EHF occurred in May-June and in November. Sporadic winter cases can be attributed to the activity of individual rodents which fail to hibernate.

Race, age, sex, and nutritional status have little effect per se upon liability to infection with EHF. The determining factor of chief importance is exposure to the vector. EHF is especially common in males of military age, between 20 and 30 years of age. Cases of EHF in Manchuria have been most frequent in soldiers, immigrant agricultural workers and others whose occupation is to gather and to store hay for fodder or for bedding. Campers of any kind may be exposed to the

disease when they use for bedding hay which in these parts of the Far East is likely to be infested with the vector arthropods of EHF.

Vertebrate hosts. The distribution of Far Eastern EHF seems to parallel closely the distribution of certain back-striped subspecies of the field-mouse, Apodemus agrarius, and of a species of the Laelaps mite which parasitizes them with some preference. The Manchurian field-mouse is a reservoir of the infection. This species can be found in forests as well as in the open country, in swampy lowlands, shrubs, gardens, around rural dwellings, in mountainous regions up to 4-5-thousand feet altitude, and as far North as 65° Lat. Its nests are frequently found on the grass-covered slopy banks of rivers. With the hay it may be carried into human habitations which the field-mouse may also instinctively seek in search of food (seeds, berries, roots, etc.). Other rodents, such as the Eastern vole, the common water-rat, the house-mouse and the squirrel also play some role in the spread of the epidemics.

Vectors. The principal suspected vector is Laelaps jettmari (Vitzthum 1930), a small mite (0.740 mm.) which is hardly larger than the dots over the 'i'-s in this article. Among other potential vectors in Manchuria are other species of the Laelaps mite as well as the common tick.

Transmission. Transmission takes place supposedly by the bite of an infected mite though it is still doubtful whether the portal of entry in human infections is through the skin. There is no visible puncture which may be considered as the bite of Laelaps. It is also unknown at present whether infection can be contracted from liquid feces of the mite or from the juice of its crushed body whenever it penetrates the skin.

Control and Prophylaxis. The most effective measure in the control of EHF and the vector mite is the destruction of the vertebrate hosts, the rodents and their nests wherever they are found. Such a fight against rodents, combined with the clearing and cultivation of land is impracticable on account of its tremendous cost. As a successful substitute, local control measures, combined with sanitation of hay at its importation to a camp may substantially reduce the number of epidemic outbreaks of EHF.

The personal prophylaxis consists of special care in handling hay at localities where EHF is known to be endemic, disinfection of clothing, etc. The Russians recommended special clothing, overalls, high boots and rubber gloves for hostlers, and others who feed horses or bathe them in rivers. The Japanese army experience with protective clothing or with repellent oils against mites is not conclusive.

It was stated late in 1951 that the U. S. Army was going to develop a specific vaccine against EHF from infected mites. At present, however, such vaccine is not yet available.

Human Experimental Pathology. The human experiments proved that the agent of EHF is a virus able to pass through a Berkefeld filter V; that it cannot pass through the mucosa of the upper respiratory passages, and that the use of convalescent serum may be of value in modifying the clinical course provided that it is given in the first days of sickness. (Note: None of the experimentally infected subjects died.)

Symptoms. The latent period of infection varies from 1 to 4 weeks, with an average of 2-3 weeks of incubation. Smorodincev's experimental infections by the intravenous route required a minimum of 11 days for development. Prodromal symptoms of an indefinite character may precede the onset of high fever which may be accompanied by a chill. The onset is very similar to the symptoms of epidemic typhus fever, and the temperature reaches 104° F (40° C). The average duration of the fever is 6 days. Defervescence often takes place by sudden crisis, less frequently by gradual lysis.

The first or febrile stages of illness is followed by the afebrile second stage in which, for about a week, the clinical signs of the hemorrhagic diathesis and toxemia make their appearance: (1) the purpuric skin petechiae (with positive Rumpel-Leede test); (2) the urinary symptoms of renal hemorrhage (visible or microscopic hematuria, albuminuria, oliguria, hyposthenuria, fibrin casts); (3) the general signs of renal damage (thirst, pseudo-uremia, chloropenia, azotemia, vomiting, hiccup); (4) hematemesis, hemoptoe, melena; (5) toxemic cerebral symptoms.

The third stage is the convalescence which in the majority of patients ends in full recovery. The albuminuria and hematuria cease in a few days. The oliguria is replaced by abundant diuresis which, combined with the polydipsia, strongly resembles the clinical features of diabetes insipidus. The concentrating ability of the kidney is, however, not fully restored even after 5 weeks of sickness.

Differential Diagnosis. There are many infectious diseases which may be confused with certain clinical forms of EHF, but attention to the clinical characteristics mentioned, to differences in epidemiological features of the disease, and adequate serological and laboratory tests which are already available for the diagnosis of these confusing infections (such as Weil-Felix test, microscopic study of agent, sero-diagnosis, etc.) will make differentiation easy. Influenza, sepsis, grippo-typhoid leptospirosis, exanthematic typhus, virus encephalitis, and the 6 other forms of virus hemorrhagic fever (of Bukovina, Crimea, Tashkent, Uzbekistan, Omsk, etc.) should be especially distinguished from the Far Eastern EHF. The geographically labeled virus fevers can be partly excluded by their different endemicities. In making a differential diagnosis the physician should compare not single symptoms but clinical pictures, since correspondence of a few clinical symptoms between textbook description and life presentation of ailments is rarely sufficient for identification of a disease.

The presence of the causative virus of EHF could be demonstrated in clinical cases by inoculating monkeys, eastern voles or other susceptible animals intravenously with blood from the patient taken in the first days of his sickness. Such a procedure may be impractical for the diagnosis of sporadic cases but it may be helpful for the recognition of larger outbreaks of EHF.

Prognosis. While the earliest observers considered that the outcome of EHF was always doubtful, the present belief is that the overwhelming majority of patients will recover without any permanent renal damage. The outcome also depends upon the particular clinical form in which the infection attacks a person.

Incessant vomiting, obstinate hiccup, development of anuria, severe cerebral

symptoms, profuse hemorrhages, very marked hyperleukocytosis, and high grade of transient myopia are considered incompatible with a good prognosis. The reported percentages of death vary so much throughout the years that one is inclined to assume a certain inaccuracy of diagnosis in the older observations.

Treatment. Among the Japanese the patient suffering from EHF was isolated in a hospital and subjected to all rules of disinfection, though this seems to be unnecessary since the disease is taken as non-contagious by contact between persons. Nevertheless a patient with EHF should be hospitalized, preferably till the end of the second stage of the disease (or the complete disappearance of clinical symptoms). Complete rest in bed should be insisted upon, and transportation of the patient should not be undertaken during fever or hemorrhage.

The convalescent serum which the Russians recommended in 1940 may be beneficial when given during the first days of illness. In the Russian human experiments 50 ml of convalescent serum was used intravenously, and the patient responded to such treatment with immediate change in the further course of the disease. Antibiotics were recently tried without effect.

The value of adequate diet, chiefly lactovegetable, without restriction of salt has been emphasized. Large amounts of fluid act as a sort of antidote against the toxin of the virus of EHF when given at an early stage of the sickness. For the protection of the kidney and liver large doses of vitamin preparations (vitamin C), glucose-insulin, and alkalinization of the body were recommended.

During the second stage of the disease the treatment is directed (a) against the dehydration of the body, (b) for rechloruration. Symptomatic and supportive treatment and good nursing care are essential (cardiac remedies, diuretics, anesthetics and sedatives). There is no measure to stop vomiting and to alleviate incessant hiccup, though the Russians experimented with many measures, including surgery. Excruciating lumbar pain can be stopped by nerve-blocking.
(Mil. Surgeon, April 1952, LTCOL C. F. Mayer (MC) USAR)

NOTE: (See Medical News Letter vol. 18,no. 8, 19 Oct. 1951, p.2)

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The Importance of Coxsackie Viruses in Human Disease, Particularly "Minor Illnesses"

"Virus infection" is possibly the diagnosis most frequently made by physicians today. It is generally supposed that this term includes the majority of the so-called "minor respiratory illnesses." The agents which cause these "minor illnesses" appear to have a very special talent, namely, an ability to preserve the human subject for innumerable subsequent attacks of similar illnesses. Because they represent a more subtle category of human parasite, they do not attract attention by destroying their hosts as the so-called "major" but more easily controlled disease agents do. The agents responsible for these "virus infections" are quite satisfied to disarm their human host by producing misery, discomfort and incalculable disability on a temporary and piece-work basis.

Terms other than "virus infection" which are frequently applied to this hodgepodge of illnesses are: "common cold", "La grippe", "influenza-like disease", "catarrhal fever", "virus X disease", "virus sore throat", "winter vomiting disease", "intestinal influenza", etc. This is not to say that all is hopeless and that effective methods for rational investigations of the problem are not available.

A major step forward has been the recent recognition of an entirely new group of human viruses known as Coxsackie viruses. Already lumped under this general and rather peculiar term are 15 immunologically distinct agents of human disease which were completely unknown 3 to 4 years ago. Similar in size and biologic properties to poliomyelitis virus, like poliomyelitis virus, they are extremely prevalent in children in the summertime. These 15 viruses, on the basis of present information, can be separated into at least 2 large groups of viruses - or possibly more - which Dalldorf has provisionally labelled Group A and Group B. Unlike many human viruses (such as poliomyelitis viruses) the so-called Coxsackie viruses can be demonstrated with ridiculous ease in a cheap and widely available laboratory animal - the suckling mouse. Consequently, within 3 years, more than 100 papers from various parts of the world have reported studies of the presence of the virus in man or of the antibodies produced by them.

Diseases produced by Coxsackie viruses. Early reports stressed the occurrence of these viruses in the throat washings and the feces of persons ill with clinical poliomyelitis. Unfortunately, it was not realized at this time that these viruses represent possibly the most prevalent virus infections in man (with the possible exception of influenza). Consequently, little effort was made in most instances to include for study other than a highly special group; namely, poliomyelitis and poliomyelitis-like illness. Coxsackie viruses of various types were repeatedly recovered which led to considerable speculation, some misconceptions and a few spurious conclusions concerning their role in disease. Subsequent reports from many parts of the globe indicated that these agents could be recovered not only from cases of poliomyelitis but from persons ill with a variety of diseases as well as from persons who were not ill at all. Indeed it would seem impossible, except under very special circumstances, to search for these agents and not to find them. Therefore, a very basic question has been raised, namely, whether or not such agents are pathogenic at all. One way or another this question has to a considerable extent been answered.

Working in collaboration with the Epidemiological Section of the National Microbiological Institute, the Respiratory Virus Section developed methods for large scale sampling for these viruses in human communities. By studying outbreaks of illness and at the same time many other persons who were not ill and who lived in the same area and were in all important respects equivalent, it was possible to show that the Coxsackie viruses under natural conditions did indeed cause illness in man.

During studies in Parkwood, Maryland and Woodmont, Virginia communities and in Washington, D. C. hospitals in 1949 and 1950, it was found that a seldom recognized, but a widely prevalent childhood disease known as herpangina, represented the chief clinical manifestations of infection with many if not most of

the so-called Group A Coxsackie viruses. (See Medical News Letter, Vol. 18, No. 6, 21 Sept. 1951, p. 22) Subsequent studies during 1951 in North Carolina, Philadelphia, and in Washington, D. C. have fully confirmed these findings. These studies provided little basis for the hypothesis that these viruses occurring alone or in the absence of poliomyelitis virus were in any way capable of producing poliomyelitis-like illnesses.

In 1949, Curren and Melnick at Yale, Weller and Enders at Harvard; in 1950, Lazarus in Seattle, Washington, described the occurrence of Group B Coxsackie viruses in persons ill with epidemic pleurodynia or "Bornholm disease." Unfortunately, again these studies were confined to persons ill with disease. The demonstration at Yale that laboratory infections with some of the B agents produced pleurodynia-like illnesses reinforced the hypothesis that these agents were responsible for naturally occurring epidemic pleurodynia. This alarming but non-fatal disease occurs both in epidemic and endemic forms, and has been reported recently from various parts of the world in increasing numbers.

In 1951 representatives of the National Microbiological Institute investigated an outbreak of epidemic pleurodynia of considerable proportions in the northeastern part of Texas. Laboratory studies of this disease were performed at the same time as its actual occurrence in the general population. Attempts were made to study large areas and large groups of normal persons who had no signs of the disease.

It was extremely disturbing but not surprising to find immediately that group A type viruses could be isolated from the feces of persons having epidemic pleurodynia. A non-critical and superficial investigation could well have closed with these findings and have presented an entirely false picture. Intensive investigations of other ill persons and of well persons revealed that a Group A virus was indeed prevalent in the area where a great deal of epidemic pleurodynia was also occurring. However, this virus was <u>not</u> found in the majority of pleurodynia cases occurring in Telephone, Texas - a small community placed under study. Instead it was found that the majority of the persons ill with epidemic pleurodynia rarely harbored group A virus in their feces. Most of the patients were found to have another virus - a Group B virus which had previously been isolated by Lazarus from several cases of epidemic pleurodynia in Seattle, Washington. Furthermore, it could be shown that some of the ill persons from whom the Group A virus had been isolated earlier also contained in their feces this same Group B virus; which because of its slower development in the suckling mouse had not been recognized. From this study at least 2 important points seem to be clear: (1) There is no substitute for intensively controlled observations on the occurrence of prevalent infectious agents in the human population; (2) all evidence appears to support the hypothesis that epidemic pleurodynia is caused by one or more Group B Coxsackie viruses.

Thus, from studies emanating from a number of different laboratories, including the National Microbiological Institute, it would appear that the majority of the Coxsackie viruses will be found to cause either one of two diseases, herpangina or epidemic pleurodynia. However, not all of the so-called Coxsackie viruses are accounted for as yet with respect to their potential pathogenic behavior in man.

One of the more interesting problems concerns simultaneous infection with 2 or more of these extremely prevalent Coxsackie viruses and the almost equally prevalent poliomyelitis viruses. Although there is some explanation of what these viruses do when they occur alone, there is no clear-cut information concerning the behavior of these agents when they occur together in a single human host. Each of them, the poliomyelitis, pleurodynia and herpangina viruses could be expected to produce their peculiar pathology. Would accentuated disease be produced or would interference result in lesser manifest disease? Certainly the reports of at least 50 different instances of such combined infections, as well as the predictable necessity for such prevalent agents to so occur, makes this question one of the most pertinent in the virus field today. The viruses of poliomyelitis and so-called Coxsackie viruses are inextricably bound together.

Viewed from the detached biological standpoint one is less impressed by the apparent differences between the poliomyelitis and Coxsackie groups of viruses. These viruses apparently manifest similar physical attributes, being approximately the same size and being able to resist a great variety of unfavorable conditions. They are apparently inactivated by similar degrees of heat. They all seem to be extremely resistant to such chemicals as ether, alcohol, benzene, phenol and proteolytic enzymes. The biologic facts of importance in the host-parasite relationships of these viruses in man are their uniform ability to propagate extensively and to escape from the oropharyngo-gastrointestinal tract.

From this microbial but important viewpoint, it is quite apparent that the production of disease is completely non-essential to the perpetuation of the parasitic arrangement that these viruses have with man. Thus, these agents would appear to be approaching the millenium sought presumably by all parasites; namely, a symbiotic relationship with their host. Of these agents, the poliomyelitis viruses would appear to have approximated this goal more closely than either herpangina or pleurodynia viruses. It is hardly a disputed fact that poliomyelitis viruses which produce infection in virtually every human, produce clinically recognizable poliomyelitis in no more than one in a hundred or one in a thousand infected persons. On the basis of present knowledge derived from community studies it would appear that both herpangina and pleurodynia produce clinically recognizable illness far more frequently than this. Although this inverted viewpoint may seem irrelevant from the standpoint of public health, such a viewpoint would appear to be fundamental to the attainment of a better understanding of the total effects of these viruses upon the living cells of man.

In summary it can be stated that the so-called Coxsackie viruses are not only the most recently recognized infectious agents of disease, but they also represent some of the most frequently occurring virus agents, causing a great deal of misery and distress in the human population. Although they would not appear to derive importance from the standpoint of producing death in man, they are important for other obvious reasons:

They repeatedly reproduce infection and disease in virtually all humans.

Their discovery has opened a veritable Pandora's box of new viruses, and new concepts of the virus flora of man have become necessary by the discovery of such a great variety of new agents.

Their extreme prevalence has forced a critical scrutiny of some of the criteria customarily used to establish the etiologic significance of human viral parasites.

The comparative ease with which these agents can be isolated from man and studied in the laboratory provides an unprecedented opportunity to study (a) the basic nature of the biologically similar small viruses, (b) new methods for mass sampling for viruses and (c) the natural history of the occurrence of a number of these small viruses in nature, specifically in man. (Dr. R. J. Huebner, National Microbiological Institute, NIH, Bethesda, Md.)

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Survey of Epidemic Typhus Antibody Levels in Bloods of Individuals Born in Eastern and Central Europe and the United States

Several reports published in the last 20 years have confirmed Zinsser's hypothesis that Brill's disease represents a recrudescence of an old infection with Rickettsia prowazeki. The disease is most common among people born in Eastern and Central Europe where such infections have been very prevalent. It is assumed that the rickettsiae persist in latent form in the body of individuals recovered from the disease. Although rickettsiae have been isolated in Brill's disease, their presence has not been determined during the quiescent period between the original infection and recrudescence. The survival of viral and rickettsial agents in the host is often associated with the persistence of demonstrable antibodies. Thus, although the finding of specific antibodies cannot be regarded as absolute proof of the coexistence of the rickettsiae somewhere in the body, the finding of a higher frequency distribution of such antibodies in individuals of European birth than in individuals born in this country would add strong support to this assumption, provided the 2 groups were derived from similar socio-economic segments of the population in this country. The chances of contact with typhus rickettsiae in the United States are probably the same in immigrants and native born persons of similar socio-economic groups. It was felt that a mass serologic survey of a number of consecutive hospital ward admissions might answer the question of the presence of typhus antibodies in the 2 groups. The place of birth of these patients was not known to the laboratory until the tests were completed. In addition to the 2 groups, a third control series was included in this survey. This group consisted of inmates of a penal institution and a small number of doctors on the staff of a general hospital.

In a group of 69 individuals born in Eastern Europe, 12 (17 %) possessed antibodies to epidemic typhus rickettsia, whereas in a group of 80 individuals of a similar economic background but who were born in this country, none possessed these antibodies.

In a group of 92 inmates of a penitentiary, only 2 showed these antibodies, and it is possible that these resulted from vaccination to typhus.

The definite correlation between the presence of antityphus antibodies and residence in Eastern and Central Europe implies that these antibodies represent infection with epidemic typhus. The long persistence of these antibodies after the individuals leaving an area where typhus is prevalent is consistent with the survival of rickettsia in latent form for long periods of time after the original infection.

The washed rickettsial antigen was again found to be more specific than the soluble antigen. Nevertheless, the soluble antigens were found to be of great value in the diagnosis of Brill's disease and also for the purpose of this survey. (Am. J. Med. Sci., April 1952, M. M. Sigel, L. B. Weiss, N. Blumberg & J. C. Doane)

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Hodgkin's Disease of the Lung with Cavitation

Hodgkin's disease is characterized by a marked involvement of lymphoid and reticuloendothelial tissue. The location of the disease within the chest will therefore be determined by the distribution of these tissues, which are present in abundance in the interstitial tissue of the lung and the mediastinum.

The disease can originate in the lung itself, or the lung can be involved by direct invasion from affected glands in the mediastinum. The further spread of the process within the lung may follow the peribronchial or perivascular lymph vessels, and can result in peribronchitis or intrabronchial changes with granulations. Where the granulations and thickening of the bronchial wall are extensive, they may cause bronchostenosis, and the findings will be indistinguishable from a case of bronchiogenic carcinoma. Another form of spread within the lung is the more peripheral involvement of the alveolar wall, with the production of granulations followed by consolidation of lung segments or lobes resembling an ordinary pneumonia or pulmonary tuberculosis. A less common manifestation is the occurrence of well-circumscribed isolated nodules in the lung, giving a picture similar to secondaries in the lung. A miliary form has been described.

Central necrosis and the formation of cavities are not met with in Hodgkin's disease in other parts of the body, but cavitation does occasionally occur in the lungs, probably as a result of the special anatomy of the pulmonary tissue. When a cavity has been formed within the infiltration, pulmonary tuberculosis, lung abscess, or abscess in combination with a bronchiogenic carcinoma have to be considered in the differential diagnosis.

The symptoms caused by pulmonary Hodgkin's disease are more or less the same as those met with in the more common pulmonary diseases. They are fever, cough, night sweats, pain in the chest, loss of weight and dyspnea. If a cavity is present the patient will probably cough up purulent sputum; hemoptysis is not common, but has been recorded. Changes may take place in the peripheral blood, and patients suffering from Hodgkin's disease may have a normal, high, or low blood-cell count. The sedimentation rate is generally elevated. A positive diazo reaction in urine is suggestive, but not necessarily present.

In about 10 % of the patients suffering from Hodgkin's disease one finds generalized pruritus which is a very troublesome complaint.

The prognosis in cases with pulmonary Hodgkin's disease is not as good as in patients afflicted with the same disease in other parts of the body. In the 9 cases with pulmonary manifestations and cavitation reported in the literature, the survival from the time of the first symptom to death varies between 2 and 9 years. The site of the process was the right lung in 8 of these instances. The presence of constitutional symptoms is often met with in patients with pulmonary involvement, and is a bad prognostic sign.

During the last 2 years, 3 patients suffering from pulmonary Hodgkin's disease, with cavity formation, have been observed by the authors. They were all women, aged 20 to 53 years. The symptoms referable to the respiratory tract prior to admission were very slight. They all had a high B. S. R. - 100 or more mm. in 1 hour. The pulmonary lesions in all 3 cases were localized to the anterior segment of the upper lobe on the right side. They all had adhesions to the mediastinal pleura, and in all cases enlarged retrosternal glands were found. In none of the cases was general lymphadenopathy present.

In pulmonary Hodgkin's disease it will always be a problem to determine whether the primary site of the lesion is in the lung or in the mediastinum. This will be of considerable importance in deciding whether surgical treatment is justified.

In the authors' cases, it is felt that most likely sequence was that the disease in the lung extended from involved glands in the mediastinum by direct extension through the pleura.

Diagnosis was suggested by a positive diazo reaction in the urine in 1 patient with thoracic manifestations. In another, a bronchial smear examined for Reed-Sternberg cells verified the diagnosis.

The treatment for pulmonary Hodgkin's disease, as for Hodgkin's disease elsewhere, is x-ray therapy, nitrogen mustard, or surgical removal of the localized focus. If a cavity in the lung is present and it is possible to remove the involved glands in the mediastinum, a lobectomy or pneumonectomy followed by irradiation and possibly nitrogen mustard seems to be the most logical treatment.

If there are necrotic and secondarily infected glands in the mediastinum, surgical treatment seems to be of little value, and in the authors' patient only shortened the time of survival.

The prognosis with irradiation alone is not too bad, and regression of infiltrations and disappearance of cavities have been reported.

In spite of the rarity of pulmonary Hodgkin's disease with cavitation, one ought to have it in mind in the differential diagnosis of the more common lesions in the lungs. An effective histologic examination of the bronchial secretion may be of help in obtaining the correct diagnosis. (J. Thoracic Surg., April 1952, Leif Efskind & Per Wexels, Oslo, Norway)

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The Management of Foreign Bodies in the Alimentary Tract

Every physician at some time has the problem of properly managing a patient with a foreign body in the alimentary tract. The most important factors are: whether operative treatment is indicated and if not, what constitutes a good conservative program.

This study extends over an 11-year period from 1939 to 1950 and includes 59 patients who had swallowed foreign bodies of various types. One-fourth of the patients were psychotic. The ages of the patients ranged from 11 months to 88 years with approximately 60 % of the non-psychotic patients being under 5 years of age.

The types of foreign bodies found in this group of patients varied considerably in size and shape. In the blunt group, coins and closed safety pins were the chief offenders. The largest objects were 3 spoon handles which were removed from the stomach by operation. Sixty-three percent of these blunt objects passed spontaneously, while the remainder were removed by means of esophagoscopy, celiotomy or, in the case of rectal foreign bodies, by manipulation.

Of the sharp objects, glass fragments, razor blades and pins were most common. Greater concern was expressed in the case of sharp objects than of blunt objects. However, in contrast to the 63 % of the blunt objects which passed spontaneously, 80 % of the sharp objects cleared the gastrointestinal tract without operative intervention. Given an adequate trial, the most formidable of objects will, in most instances, pass spontaneously without harming the gastrointestinal tract.

Esophageal Foreign Bodies. In these cases, it must be decided whether operative intervention is necessary. Foreign bodies found in the esophagus are accessible and may be removed by esophagoscopy. However, it must be recognized that esophagoscopy is not an innocuous procedure. Proper facilities, trained personnel and special instruments are necessary.

Many foreign bodies found in the esophagus need not be removed. Matheson reviewed 602 cases of esophageal foreign bodies. Of these, no foreign bodies were found by esophagoscopy in 225 cases despite the fact that all symptoms pointed to their presence. The symptoms were accountable for by mucosal laceration in 77 of these cases. In the remaining 148 cases, all of the foreign bodies had been demonstrated to be in the esophagus by roentgen ray but either passed into the stomach before esophagoscopy was attempted or before they could be grasped with a forcep. They were all later passed in the stool without complication. Matheson also states that only 22 % of foreign bodies which lay below the cervical constriction when first seen produced persistent symptoms. These observations would indicate that the great majority of esophageal foreign bodies will pass without trouble.

The authors advocate the removal of all objects lying above the cricopharyngeus, for in these instances the dangers of esophagoscopy are relatively minor. For an object found below the cricopharyngeus, immediate attempts at removal by esophagoscopy should not be made unless, because of the size or shape of the object, it is thought unlikely that it will pass into the stomach.

If, by roentgen ray examination, the object has not progressed in a period of 24 hours, esophagoscopic removal should be carried out. A longer waiting period makes removal more difficult because edema and necrosis result in tighter impaction of the object. If difficulty is encountered in withdrawing the object through the esophagoscope and it can be advanced into the stomach, it is acceptable to do so.

Persistent symptoms occur occasionally in patients despite the fact that no object can be visualized on x-ray examination. Again, following 24 hours of watchful waiting, esophagoscopy should be done to rule out the presence of a radiolucent foreign body. If impaction occurs in infants or young children below the cervical esophagus, the presence of a congenital esophageal stricture should be considered. In these cases, the parents should be questioned about previous episodes of a similar nature or past feeding problems.

In patients with symptoms or signs of obstruction, hemorrhage or mediastinitis, removal of the foreign body by esophagoscopy or thoracotomy is indicated. When mediastinitis is present, effort should be made to control it before intervention.

Gastrointestinal Foreign Bodies. In the authors' experience with gastrointestinal foreign bodies in 38 patients, 4 celiotomies were carried out. Included were a gastrotomy for 3 open safety pins, a gastrotomy for 3 spoon handles, a duodenotomy for an open safety pin located in the second portion of the duodenum, and an ileotomy for a large beef bone which had perforated the lower ileum at two points. Of the 2 patients on whom a gastrotomy was performed and the 1 patient on whom a duodenotomy was performed, none presented any signs or symptoms of appreciable importance. Two of these patients had ingested the foreign bodies only 24 hours prior to operation and, in retrospect, the authors feel that operative treatment could have been delayed in favor of a period of conservative management. The spoon handles had been ingested some months prior to admission and were discovered on routine x-ray examination. They were removed because of failure to progress over a long period of time. The foreign bodies in the remaining 34 patients passed spontaneously, except in 3 cases in which it was necessary to remove the objects from the rectum, a relatively simple procedure.

Numerous instances of perforation at various levels of the gastrointestinal tract have been reported in the literature. In the authors' cases, however, perforation of the lower ileum occurred in only 1 patient. Intestinal obstruction, as discussed by Burke and Storek, did not occur in this series.

The authors believe that many patients who swallow foreign bodies probably never come to the attention of a physician, either because it is not known that a foreign body has been swallowed or because the symptoms are not sufficiently serious to cause the patient to seek medical advice. Particularly do they think this might be true among psychotic patients.

Operative treatment of gastrointestinal foreign bodies is not thought necessary except when definite indications are present. The authors have adopted a policy of observation for a period of 4 weeks before concluding that a foreign body is definitely impacted. If no progress is seen on x-ray examination at the

end of this period, operation is performed.

Operative treatment is advised only if the following specific indications are present:

a. Failure of a foreign body to progress.
b. Presence of a foreign body unlikely to pass spontaneously.
c. Presence of a foreign body likely to penetrate the bowel.
d. Symptoms or signs of obstruction, mediastinitis or peritonitis.
e. Gastrointestinal hemorrhage.

Conservative Treatment. The principles of conservative management which are adhered to are as follows: All patients who have swallowed moderately large or sharp objects should be hospitalized until one is certain that no untoward complications will occur and that progress is maintained. A general diet is satisfactory but roughage should be avoided. As in the case of acute appendicitis, such measures as catharsis and gastric lavage are to be condemned.

The swallowing of cotton balls or other tricks have not been found to be of any advantage. The authors have not used magnets in an effort to withdraw foreign bodies from the upper alimentary canal.

Roentgen ray examination should be carried out daily for the first 3 days and every second day thereafter. It must be remembered that x-ray examination in both antero-posterior and lateral views is desirable. Careful examination of each stool should be made in an effort to recover the foreign body. (Ann. Surg., April 1952, T. D. Grekin & M. M. Musselman)

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Ultrasound and Industrial Medicine

Ultrasound equipment is being used more and more extensively in industrial situations. It is used to detect flaws in materials, to determine certain properties of materials, to secure dispersion of solids in liquids (emulsion), for agglomeration of particles from liquids and gases, and many other jobs. Many of these operations are so arranged and the equipment is so designed that there is little chance for direct contact of the operator with the generator or the material under test. In these cases there appears to be little chance that a hazard to personnel exists. However, certain other operations, such as removing grease from metals and other cleaning processes employing ultrasonic energy, may require direct contact of the attendant with the irradiated material. There is certainly a probable hazard in such operations. It will be necessary for the industrial medical personnel to watch such operations, and require utilization of methods including the use of protective equipment which prevents contact between any part of the operator's body and the generator or material being irradiated. Exercising reasonable care in process layout and utilization of protective equipment should remove any hazards that may be present.

Ultrasound is being extensively used in biology and medicine in experimental studies and in therapeutic methods. The literature in these biological fields is already extensive, and more work is undertaken daily.

Experimental Studies Employing Ultrasound. The experimental studies in which ultrasound is employed usually have one of the following purposes: (1) the determination of the physical properties of the tissue studied; (2) the determination of the mechanisms by which ultrasonic energy produces an effect on biologic material; (3) the determination of the effect of ultrasound on physiologic functions of tissue; (4) the ultrasound is used as a tool to perform localized injury or destruction of tissue for the purpose of evaluating the usual function of the tissue area destroyed, or rendered non-functional. Frequently all purposes mentioned are combined in the same experiments, but, more commonly, purposes (1) and (2) are combined, and purposes (3) and (4) are combined.

Recent studies in one or more of these fields include: (1) studies on the effects of ultrasonic energy on nervous tissue; (2) an evaluation of ultrasonics in relation to medicine; (3) studies on temperature effects on bone and surrounding tissue. Some of the studies have been aimed at the production of changes in the structure of tissues both physical and chemical.

Other studies have been directed toward the separation of the mechanisms producing the action on tissue. One effect that always accompanies ultrasonic irradiation of tissue is the production of heat. Heat can cause damage, and it has been said that all effects of ultrasonic energy are the results of overheating. The results of some of the experiments cited indicate that there are effects produced by the ultrasonic irradiation which are not produced by heat, since the effects are produced when heating is controlled.

It has been found that ultrasonic energy can be applied under controlled conditions so that it will act selectively on certain tissues. This makes possible studies of the function of those tissues that can be selectively damaged or rendered non-functional, particularly studies on the nervous system. Ultrasonic energy appears likely to become a very useful tool in biology and its use will probably increase greatly.

Diagnostic Uses. Because various tissues and body structures have different capacities for reflecting or absorbing ultrasound it may be possible to utilize these effects in localizing or determining the dimensions of these structures. Foreign bodies or crystal secretions located in some part of the body may possibly be located by the application of ultrasonic waves.

Two such attempts of considerable interest may now be mentioned. An attempt has been made to develop a method for obtaining a ventriculogram (human brain) without using operative procedures or the injection of gases into the central nervous system. Reasonably satisfactory ventriculograms have been obtained, and the method shows considerable promise. At NMRI, Bethesda, Md., and the Naval Research Laboratory a method has been devised for localizing gallstones in the human body. This application seems to be feasible practically, and certainly would be of great use in localizing foreign bodies in the human body.

Therapeutic Uses. Ultrasonic energy has been used for various therapeutic purposes. The applications have been made most rapidly in Germany. There is still much uncertainty as to its effectiveness. Certainly much caution should be exercised in therapeutic applications until it is established: (1) that ultrasound is an effective agent, and (2) that it can be applied in such a manner that it will not produce unexpected damage. Most American investigators have found that the therapeutic effect is uncertain, and that the hazard in the form of excessive

exposure and destruction of tissue is considerable.

The use of therapeutic equipment, where an operator may be in contact with the generator for several hours each day is probably hazardous unless protective equipment is used. Burning of the skin and other undesired actions on operators have been indicated in the German reports. If the use of the equipment becomes extensive, this will be an area requiring careful scrutiny. At present the degree and extent of the hazard cannot be stated, but control of it should be easily achieved. (Indust. Med. & Surg., April 1952, MAJ H. O. Parrack, USAF, Chief, Bio-Acoustic Unit, Aero-Medical Laboratory, Wright-Patterson AF Base, Dayton, O.)

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Human Melanogenesis

One of the major objectives in the study of the biochemistry of cancer is to establish a difference in the nature or quantity of enzymes present in normal and in malignant tissues. If it could be shown that a malignant tumor contained an enzyme not present in a benign tumor of the same type or in normal tissue of the cell type from which the tumor was derived, then it might be possible to inhibit selectively the enzyme peculiar to the tumor and consequently impair the growth of the tumor without affecting the metabolism of the normal cells. Furthermore, if it could be demonstrated that the activity of an enzyme in normal cells differed from that in malignant cells, the pathogenesis of the change from a benign to a malignant state might become apparent. In the past few years investigation of the enzyme systems of normal and malignant melanogenocytes (formerly known as melanoblasts) has revealed that the state of the tyrosine-tyrosinase system in normal cells may be different from that in malignant cells. The following facts have been established:

1. The enzyme, tyrosinase, which previously was shown to be present in plants, marine animals and insects, has been demonstrated in mammalian tissues, including human skin. This enzyme requires copper for activity and is attached to cytoplasmic inclusions called mitochondria. Both tyrosinase and dopa-oxidase activities can be accounted for by a single enzyme.

2. Tyrosine, a stable amino acid, is most probably the physiological precursor of melanin in mammals, including man. Tyrosine is the major and initial substrate of the enzyme tyrosinase.

3. In the presence of molecular oxygen, the enzyme, tyrosinase, catalyzes the oxidation of the colorless amino acid, tyrosine, to melanin, an insoluble polymer of high molecular weight. This enzymatic reaction is controlled by several physico-chemical factors including oxidation-reduction potentials and naturally occurring sulfhydryl compounds in the epidermis. The sulfhydryl groups may be important in binding copper, which is required for tyrosinase activity, and thereby inhibiting the enzyme action.

4. Radiant energy (ultraviolet rays, thorium-X and x-rays) has been shown to "activate" the melanogenocytes of human skin. These cells are able to form melanin when irradiated human skin slices are incubated with tyrosine. The tyrosinase in normal unirradiated melanogenocytes is unable to combine with

tyrosine to form melanin in vitro.

In biochemical and histochemical studies with human tissue, the tyrosine-tyrosinase system is shown to exist in an inhibited state in unirradiated normal melanogenocytes, pigmented nevi, ephelides, lentigines and verrucae seniles. In irradiated normal melanogenocytes and in malignant melanoma cells, the tyrosine-tyrosinase system is shown to be present in an active state. The terms "inhibited" and "active" refer therefore to the ability of the tyrosinase system within the pigment cell to convert the sybstrate tyrosine to melanin. The association of the activation of the tyrosinase system with the development of malignancy in the melanogenocyte and the use of the histochemical tyrosinase reaction for the identification of amelanotic melanomas are discussed by the author.

He found that the tyrosinase reaction appears to be associated with the malignant character of human pigment cells (melanogenocytes). Of the malignant neoplasms, melanoma cells alone form melanin when incubated in tyrosine. The other malignant tumors tested did not contain tyrosinase activity.

Nonmalignant pigment cells in normal skin require activation of the tyrosinase system by a stimulating factor (for example, radiant energy) in order to form melanin when incubated in tyrosine. The tyrosinase reaction, therefore, may provide a new approach to (a) the diagnosis of malignancy in pigment-cell neoplasms (for example, junctional nevi versus malignant melanoma), and (b) the differentiation of amelanotic malignant melanoma from other highly undifferentiated malignant lesions which it simulates, such as fibrosarcoma, lymphoma and squamous-cell carcinoma. (A. M. A. Arch. Dermat. & Syph., April 1952, T. B. Fitzpatrick)

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Evaluation of the Rice Enrichment Program

The enrichment of white rice with thiamine, niacin and iron to levels providing in 1 pound recommended daily amounts of these nutrients, plus marginal amounts to compensate for losses in storage and handling, has completely eliminated deaths from beriberi in an experimental area in Bataan where mortality rates were previously exceptionally high. It has further improved the general nutritional level and health of the populace as determined by medical and nutrition surveys before and after the introduction of the enrichment program.

The present rice enrichment program, however, has certain limitations. There are economic and technological problems. These involve the cost of vitamins and of equipment for preparing material locally, as well as for blending the premix with ordinary milled rice. Although these costs can be held to a minimum, involving as little as 35 ¢ extra per capita for a year's supply of enriched rice, this is not negligible in areas where the average family cash income may be about $40.00 per year. There remains also the problem of overcoming inertia, resistance and ignorance not only on the part of the people involved, but of government agencies whose interest and cooperation must first be obtained. The

need for accumulating reliable statistics on the incidence, severity and mortality rates from beriberi in the other rice-eating countries of the Orient has been stressed as perhaps the single most important factor in establishing the necessity for the improvement of rice diets in the minds of the various governments. The Philippine experiment is a case in point. Had there been no statistics indicating the seriousness of the beriberi problem, it is unlikely that the field trials with enriched rice would have ever been carried out. Nor could there have been the means for evaluating such an experiment without already existing statistical data for comparison. The availability of such data in the Philippines and, to some extent in Japan, are strong indications that investigations in other rice-eating countries would undoubtedly reveal a similar incidence of beriberi as a major public health problem.

Improvement of rice diets may be possible other than by artificial enrichment. These include extension and improvement of parboiling practices in areas where such rice has proved acceptable, as in India, or the use of modern "conversion" methods which are based on the principle of parboiling. Such methods increase the nutritive value of white rice by causing penetration of nutrients from the bran into the kernel. Here again, the setting up of modern plant facilities for conversion - which involves the treating of all of the rice grains - may prove to be an unsurmountable obstacle from the economic and technological point of view. Rice enrichment, which involves treating only a fraction of the rice (one part in 200), is probably simpler and more economical and has the added advantage of producing a product which does not differ in taste or appearance from the highly-milled white rice so much in demand.

The present enrichment formula, moreover, provides only a limited number of the nutrients lacking in the diets of rice-eating people. While it may be possible to add certain other nutrients, without excessive increase in cost, a further problem is introduced with the introduction of such materials as riboflavin which strongly colors the premix grains. Finally, no one food can provide a well-balanced nutritionally adequate diet. Rice, no matter how enriched, is no exception. The ultimate goal for improved nutrition in the Orient is the provision of additional foods to provide more calories and much-needed animal protein as well as vitamins and minerals. The cultivation of potatoes and sweet potatoes; major expansion of the fishing industry; the development and use of food yeast; conversion of waste land to grazing areas for dairy cattle or goats - these are some of the ways for making better diets available. It must be recognized, however, that it may be many decades before such a goal is achieved if, indeed, it ever is.

Enriched rice is at best only a partial substitute for such diets. However, the Bataan experiment has shown clearly that enriched rice can act as a major stop-gap in effecting nutritional improvement and preventing beriberi.

The ready acceptance of enriched rice in Bataan and the striking improvement in general health and reduction in mortality due to its use are the strongest arguments in favor of a rice enrichment program. Finally, the Bataan experiment has shown that public health may be benefited and improved by large scale application of nutritional principles no less than by the large scale use of other

major advances in public health such as vaccination, insect control, water purification and pasteurization of milk. ("The Rice Problem in the Orient. II The Philippine Experiment" Borden's Rev. Nutrit. Res., Feb. 1952, R. Woods)

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Treatment of Chemical Burns of the Eye With Corvasymton

A case of extremely severe corrosion of both eyes by unslaked lime, treated with Corvasymton (oxyphenyl-methylamino-ethanol tartrate solution of Philips-Roxane, Limited) is reported. The visual acuity, at first limited to the perception of light in the right eye and to 2-3/300 in the left eye, could be improved by contact lenses to 5/6.6 and 5/10 after 6 weeks of treatment, and to 5/10 by ordinary spectacles after 3 months. It is argued that by loosening up the apparently necrotic conjunctival tissues and leaving them in situ, a more satisfactory result may be obtained than by transplantations of oral mucosa (Denig-Thies operation).

Though its pharmacological action is entirely different from that of hyperemia-inducing priscol, recommended by Nagy (1951), Corvasymton has such a convincing effect, particularly in rapid disappearance of the chemosis and clarification of the completely opaque corneal regions, that, even at this stage, one is justified in giving the following broad instructions for the treatment of chemical burns:

(1) Washing with water or a neutral buffer solution; if necessary, a mechanical cleansing under anesthesia.

(2) Loosening-up of apparently necrotic conjunctival tissues, without subsequently suturing them.

(3) Plentiful instillations for a prolonged period of Corvasymton, combined with oil of vitamin A and mydriatics.

(4) In severe cases of corneal turbidity, paracentesis of the cornea, followed, if necessary, by irrigation of the anterior chamber of the eye, as recommended by Oaks (1945). (Brit. J. Ophth., April 1952, J. W. Wagenaar, Alkmaar, Netherlands)

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Suppurative Pelvic Thrombophlebitis

This is a follow-up study of 70 patients in whom ligation of the inferior vena cava and ovarian vessels was performed for suppurative pelvic thrombophlebitis. All patients in this series were operated upon between 1942 and 1950. Forty-two patients have been followed longer than 2 years. With the exception of 2 patients, all were supervised preoperatively, at operation, and postoperatively by one or all of the authors. Most of the cases were under the direction of the senior author. Detailed studies of the vascular status of the extremities have been made in many cases by Dr. Burch and associates in the Department of Medicine, Tulane University School of Medicine.

Ligation of the inferior vena cava, whether performed by the transabdominal or extraperitoneal route, is a relatively simple procedure and is not accompanied by any degree of shock. Many patients had the right or left lumbar sympathetic chain, or both, sectioned at the same time as ligation. In a few, unilateral salpingo-oophorectomy for severe thrombosis and infection of the ovary was necessary. Bilateral cystic ovaries necessitated bilateral salpingo-oophorectomy in 1 patient. In 5 cases hysterectomy was done at the same time, either because it was planned or because it was necessitated by the pathologic conditions encountered. In another patient, nephrectomy was necessitated by an ectopic kidney on the right side with the thrombus extending into the renal vein. There was 1 death in this group as a result of a transfusion reaction. There was no increase in morbidity. In another case, the thrombus extended from the right ovarian vein into the cava, cephalad, past the confluence of the right and left renal veins. In this case the thrombus was "milked" caudad, and the right ovarian vein and 2 cm. of the inferior vena cava, just caudad to the confluence of the right renal vein, were resected. Recovery was immediate and uncomplicated.

In 16 patients subsequent surgical procedures were necessary, either as a result of pelvic infection or development of disease after, but unrelated to, vena cava ligation. In 8 patients, hysterectomy was performed months to years following ligation. At the time of hysterectomy no more bleeding was encountered than at average routine abdominal hysterectomy. The pelvic vessels were not engorged, congested or varicosed, indicating that the venous return was adequate. In the patients having suspension of the uterus and repeated cesarean sections, there was no evidence of abnormal, disturbed vascularity. Two patients required lobectomy for residuals of the original infarctions which had necessitated ligation of the vena cava. One died at the time of lobectomy as a result of hemorrhage from the operative field; the other is well today. In 2 patients, severe burns of the legs healed with appropriate therapy indicating normal tissue metabolism.

Conclusions. 1. Ligation of the inferior vena cava and ovarian vessels is indicated in patients with suppurative pelvic thrombophlebitis who fail to respond to medical therapy, regardless of the severity of the illness.

2. Ligation of the inferior vena cava and ovarian vessels in critically ill patients is associated with a negligible mortality rate. The 8 deaths reported in this series resulted from the delay in operating or from the underlying pathologic condition, and not from the operation itself.

3. Subsequent surgical procedures performed on these patients were not the result of ligation of the vena cava and ovarian veins.

4. The operative hazard is not increased in patients who have had previous vena cava ligation and who require surgical procedures later.

5. The vena cava can be ligated at the same time as other surgical procedures are being performed.

6. In this series, no patient was incapacitated. Adequate compensation for the circulation in the extremities followed ligation.

7. Menstrual or sexual function was not altered by ligation of the inferior vena cava and ovarian vessels. (Surgery, April 1952, C. G. Collins, R. O. Norton, E. W. Nelson, B. B. Weinstein, J. H. Collins & H. D. Webster, Jr.)

Cholecystography With Telepaque

Telepaque, a new cholecystographic medium, is an iodine substituted organic compound, containing 66.68 % iodine as compared with 51.38 % in the cholecystographic medium now widely used. The chemical formula is: 3-(3-amino-2,4,6 - triiodophenyl)-2-ethyl-propionic acid.

Telepaque is supplied in 0.5 Gm. tablets which are about the size of aspirin tablets and easily swallowed. Experimental studies in animals have demonstrated a wide margin of safety in the doses used to opacify the gallbladder.

To evaluate the clinical usefulness of the new agent, it was given to a consecutive series of patients who had been referred, because of symptoms, for roentgen study of the gallbladder. The telepaque tablets were issued by the Drug Department of the University of Minnesota Hospitals with no attempt at selection of cases. For the first series (83 cases), 6 tablets (3.0 Gm.) were given to each patient. Concurrently, a control series of cases was recorded using the cholecystographic medium now in common use, beta-(4-hydroxy-3,5 diiodophenyl)-alpha-phenyl-propionic acid. Instructions for use of the two agents were identical except that the patients receiving telepaque were requested to take the tablets 10 hours before reporting for x-ray examination, while those in the control series took theirs 14 hours before examination. When the patient reported to the X-ray Department he was questioned directly concerning any symptoms developing after taking the cholecystographic agent. Any symptom mentioned by the patient, regardless of its mildness or severity, was recorded as a reaction.

A 14 x 17-inch film of the abdomen was first obtained to evaluate any residual opaque material in the bowel. Following this, routine cholecystograms were made in the usual positions.

Telepaque gives a somewhat lower incidence of minor untoward symptoms than other media used for this purpose. When it is used in doses of 3 Gm., the average density of the gallbladder shadow is appreciably greater than with 3 Gm. of control medium. It is often possible to visualize the cystic and common bile ducts following use of telepaque and thus gain additional information about the biliary structures. In some cases it is possible to obtain a gallbladder shadow with telepaque but not with the control medium. A possible disadvantage is the large number of cases showing opaque material in the colon after ingestion of telepaque, although in this series of patients the opacity never interfered with satisfactory interpretation of the films. The use of smaller doses, 1.5 Gm. of telepaque, does not seem to offer any real advantages over the full 3.0 Gm. dose. The smaller amount leaves less residue in the colon, but the average cholecystographic index is lower and there is no appreciable difference in the incidence of undesirable reactions. (Radiology, April 1952, E. F. Everett & L. G. Rigler)

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Waterproof Plaster

This paper presents the clinical use of 2 types of waterproof materials to be used for support. These materials are glass cloth and a resin; the other is a plaster of paris and a resin. Each has its own uses which do not conflict, except that both in many ways are superior to ordinary plaster of paris. Plaster of paris mixed with Melmac 405, resin and ammonium chloride, as a catalyst, will produce a light, hard, thin waterproof, non-irritant cast that can replace most of the uses of regular plaster.

The use of Orthoply, a glass cloth-resin material, is limited to those places where shells, molds, casts and jackets are needed. This substance requires the preparation of a plaster of paris mold. After the mold is allowed to dry, its body contact surface is painted with water glass and filled to a depth of 1/4 inch with a substance known as Orthoroc. This hardens in 15 minutes to form a very accurate mold that is extremely hard. Any rough spots can be quickly removed with sandpaper. The resin dope is poured onto this mold and two layers of glass cloth are fitted and rubbed into place. This hardens quickly and the new shell is stripped from the Orthoroc. The rough edges are trimmed. It is fitted to the patient with either an elastic bandage or buckles and straps.

This plastic style of cast or brace material has found wide clinical use. It is often used for the socket or bucket of artificial limbs because a very accurate fit to the skin can be obtained. It is light, waterproof and durable. Its tensile strength can be controlled by the number of layers of glass cloth incorporated. Two layers is the usual number, and this makes the material extremely thin, but strong enough for most uses. Three layers of cloth make it quite hard and seldom are 4 layers ever needed for any clinical use. Scoliotic or kyphotic body jackets for the growing child are excellent. The child may even go swimming in a non-padded jacket, without harm to himself or his jacket. Molded splints for paralyses, post-poliomyelitis, of the intrinsic hand muscles are especially excellent. Cock-up splints for the forearm and hand are good.

Single or double hip spica shells are very good. Many Lucite or clear plastic molded shells have been tried in this study. While waterproof and non-irritant to the skin, the Orthoply is so much stronger that it will not break up nearly so quickly, especially with an active, hard-to-control child.

The inventors of Orthoply were not satisfied, as it required the intermediary step in the preparation of a support. Dr. Harold E. Weaver, of the Sarah Mellon Scaife Foundation's Multiple Fellowship on Orthopedic Appliances of Pittsburgh, Pa., and his co-workers, looked for a better material and came up with the first real advance in the use of plaster of paris since the invention of the so-called Specialist plaster.

The material that is known as Melmac 405 is used in making some plywoods, to glue the pieces of wood together. This bond between the parts of wood is strong and waterproof. In making casts, a 30 % solution of Melmac 405 has been found to be the most successful. This is activated by adding 3 % ammonium chloride. That is, to the 1000 cc. of water is added 300 Gm. of Melmac 405. This is stirred to make a smooth, concentrated solution and is stable for many days. When ready to use, 30 Gm. of ammonium chloride is added, stirring it in slowly. The ordinary

plaster of paris bandages or so-called Specialist plaster bandages are used. The bandages are merely soaked in this solution instead of in water. No gloves are needed to protect the skin. The plaster is applied to the patient in the routine way. The better the plaster is rubbed as it is applied, the stronger, the smoother and prettier the cast. Only one-half the normal number of plaster of paris bandages are required. The Melmac plaster appears to be more than twice as strong as the plaster of paris. A thin light cast is formed, either in contact with the skin, or over stockinette, felt or cotton. It has, when rubbed well, a marble-like appearance. When thoroughly dry, it can be cut only with the electric cast cutter. Water will not soften the plaster. A 1000 cc. solution of Melmac 405 and ammonium chloride is sufficient to wet enough plaster bandages for a large adult body cast. The ease with which this cast is prepared cannot be overemphasized. There is less actual work than in the regular plaster cast as the cast is thinner and fewer rolls are used. For all practical purposes, the cast dries as quickly as regular plaster.

Casts such as body jackets for scoliosis, hip spica shells for patients with anterior poliomyelitis and frog-leg spica casts for congenitally dislocated hips are the types of casts that have been most frequently used in the study. The body casts in some cases were bound and fitted with lacings or straps. The hip spica shells and long leg shells were put on as whole casts and bivalved. They were reapplied to the patient with elastic bandage. Forearm casts for fresh and old fractures have been tried and all found to be just the same as the usual plaster of paris cast, except they were thinner, lighter, stronger and waterproof. Water standing in a Melmac plaster form for some time can be made to pass, but the cast will not soften or become wet or lose its strength. (Am. Surgeon, April 1952, M. C. Cobey)

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Preservation of Dried and Frozen Plasma Over A Ten-Year Period

The work reported here was undertaken for the purpose of evaluating the state of preservation of dried and frozen plasma after periods of storage up to 10 years. The factors in evaluating the state of preservation concerned gross appearance, turbidity, pH, and the concentration of total protein, albumin, globulin, prothrombin and complement. Viscosity determinations were carried out on a limited number of specimens, and electrophoretic patterns were obtained on 2 specimens. In addition, for the dried plasma, residual moisture and solubility were determined. Note was made of certain features regarding the packaging, such as the condition of the rubber stoppers and the degree of residual vacuum in the bottles and in evacuated metal cans. In all instances, samples of the various specimens of plasma were administered intravenously in human beings and the effects noted.

This report also includes some data on drying of plasma prepared from blood collected in acid-citrate-dextrose solution as well as in the usual plain citrated plasma.

Experimental Material. The experimental material falls into two categories: (1) Random reference specimens of frozen and dried plasma, chosen from various lots stored for periods up to 10 years and 2 months. Since studies on preservation on these specimens had not been planned in advance, no extensive tests had been made on the material when it was fresh. Consequently, the state of preservation of these samples must be evaluated by comparing the values found with the average values of fresh specimens of plasma prepared in a similar manner. (2) Special specimens from two pools prepared in 1943, thoroughly tested immediately after preparation and set aside for the express purpose of a study on preservation over a period of about 10 years. Units of this material have been tested at intervals since the initiation of the experiment.

From the technical standpoint, the random reference lots of plasma dried in the earlier periods cannot be considered altogether satisfactory. In other words, deficiencies in the state of preservation of these lots may not be necessarily attributable to the length of storage time. The changes may have occurred as a result of the original process of drying. Those units, however, which were set aside for the specific purpose of preservation-studies over a period of about 10 years can be considered technically satisfactory. All the dried plasma was kept in evacuated glass bottles, closed with red or amber rubber stoppers. Some of the random lots were placed in sealed evacuated tin cans, but the majority were not. Bottles and cans were stored in cabinets at ordinary room temperature without any particular attempt to protect them from light.

The frozen plasma was stored at approximately - 20 °C. On a few occasions mechanical breakdown of compressors resulted in warming the material to -15° C for a short period of time. Some of the random lots were, on one occasion, accidentally subjected to slow thawing and refreezing. The special lots set aside for the 10-year study never rose much above - 15° C for more than a few minutes.

All the plasma was bottled in units of 300 ml. The lots bearing numbers 63A or smaller were prepared from blood collected in 50 ml of 4 % w/v trisodium citrate dihydrate. The lots with larger numbers were made from blood collected in an acid-citrate-dextrose solution.

Plasma was separated from the cellular elements 2 days after the drawing of blood. The pools included never less than 8 and never more than 12 individual units of plasma.

Summary and Conclusion. Plasma that has been properly prepared, dried from the frozen state and stored in evacuated bottles or sealed in tin cans appears to maintain most of its essential properties for approximately 5 years. During this period there is a moderate loss of prothrombin activity, as measured by the Quick one-stage test. The prothrombin activity appears to drop progressively after 5 years, but the plasma is otherwise satisfactory for transfusion for at least 10 years.

Plasma that has been properly prepared and frozen and stored in the frozen state at - 20° C, or lower, appears to be better preserved for at least 6 years. Even after 10 years, the only change noted is a very slight decrease in prothrombin activity. Specimens of plasma preserved in the frozen state that were accidentally subjected to slow thawing and refreezing showed a loss of fibrinogen and of prothrombin. (Am. J. Clin. Path., April 1952, M. M. Strumia, J. J. McGraw, Jr. & G. E. Heggestad)

Viability of Skin in Relation to Various Methods of Storage

Split-thickness human skin stored in 10 % serum at 5° C shows marked superiority in viability as tested with tissue culture technic over that stored in vaseline gauze at 5° C, vaseline gauze at - 36° C, and wet gauze at 5° C. Epithelial outgrowth in vitro occurs up to 28 days when the skin is stored in 10 % serum. Optimal conditions for serum storage of skin are that the serum concentration be within the range of 10 to 33 %, that the amount of storage fluid in milliliters roughly corresponds to the area of the stored skin in square centimeters, and that the fluid not be changed during the storage period. Comparison between results with tissue cultures and those obtained with regrafting the skin back to patients or to experimental animals confirms the value of tissue culture tests. The results of both methods are comparable, but tissue cultures prove to be somewhat more stringent indicators of the viability of stored skin and are accompanied by fewer variable factors. (Texas Rep. Biol. & Med., Spring, 1952, M. Allgower & T. G. Blocker, Jr.)

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Suggestions on Dental Writing

In general, dental writing has one of two purposes: Either you are trying to record information of an investigative nature or you are trying to teach some phase of dentistry to fellow practitioners. If the latter is your aim, great thought should go into the presentation because of the need for clarity and for holding the reader's attention. The problem of writing for the general practitioner is important because he has a tremendous field to cover. His task should be made pleasant and productive.

This problem is not peculiar to dentistry. The editor of the American Journal of Psychotherapy wrote the following: "The reader - the worm - turns, however. His sweet revenge is that he refuses to read many psychiatric articles which are nothing more than dead paper covered with dead words."

If we are to lure the professional reader away from his habit of devouring only the summary and conclusions of our articles, we must serve a more palatable entree.

Of special importance is the organization of material. There are several ways of organizing it. Some people work out an outline and then work to that outline. Others start writing and then, after writing part or all of the article, reassemble it by actually cutting it up and pasting it into a different form. Once written, the article should be rechecked for organization. Editorial consultants frequently follow this method: Read each paragraph carefully and then put a word or two down in the margin which describes that paragraph. Then see how those briefs line up. Frequently you will find that you have covered a subject two or three times in various places in the article. Sometimes you will find that you haven't said much - you have just rambled.

There are three points of interest regarding the content of material beamed at the general practitioner. In the first place, the general practitioner does not have an immense library at his disposal, so bibliographies are not too important to him. It is a cardinal error to allude to some author with an assumption that the reader can look up a reference or is acquainted with his work. Some explanation should accompany a reference to an individual's work. However, there are those who do wish to look up references and credit should be given for previously published ideas.

A review of the literature may frequently be a bore to the reader. Reviews should be used only when they make a definite contribution to the article. If we talk about impressions, it is not necessary to begin with Phaff's impression of Frederickthe Great's mouth. If you were explaining your impression technic to a friend, you would not go back to medieval history. Why do that with the reader?

Lastly, when writing for the general practitioner, it is important to place yourself in his shoes. We want to be sure to tell the practitioner what he can do, not what we can do. Anyone can bake a cake by following the recipe, but it takes a pastry cook to put on the fancy frosting. The general practitioner does not always have the experience of the specialist, nor does he always get the fees nor have the superb technician nor the equipment of the specialist. An example of a failure to understand this is the fact that some technics call for only a split cast laboratory remount as a means of correcting occlusion. This is based on the assumption that the operator is flawless in his technics and that the split cast remount will correct laboratory errors. Any assumption like that may be correct in the case of some specialists, but it is unrealistic when presented for general practitioner consumption.

Summary. Written material will vary greatly due to subject matter but to some degree these rules should be applicable.

1. Check the organization carefully.
2. Don't be verbose; squeeze out the air.
3. Don't use a long word if you have an appropriate short one.
4. Don't go overboard on professional terminology.
5. Write as you talk, using some personal pronouns and personal words.
6. Use plenty of examples to illustrate points.
7. Explain things downward without looking down your nose.
8. Don't overuse graphs, diagrams and new classifications.
9. Don't slant.
10. Differentiate between conjectures and facts.
11. Discuss rather than debate.
12. Give references only when they will aid an inquisitive reader.
13. Include past history only when needed for clarity.
14. Present practical material.

(J. Prosth. Dent., Nov. 1951, CAPT F. M. Kyes (DC) USN)

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Survival in the Water

The ultimate purpose of all naval training is to provide the Navy with officers and men who are able to perform efficiently the duties assigned to them. For survival training the mission is to reduce the number of lives that are lost needlessly following ship or plane sinking. The following things must be accomplished in training men for survival at sea.

1. The man must be a capable swimmer; he should have received a period of instruction on how to swim through debris and burning oil.
2. He must know the fundamental principles of first aid, particularly the information applicable to injuries that may be encountered after abandoning ship.
3. He must be completely familiar with the lifesaving equipment assigned for his personal use. He must know how to maintain this gear so that if the occasion arises it is ready for immediate use.
4. He must know how to reach an open deck from his battle station or any other place aboard ship by the proper route.
5. He must know how to leave the open deck of a sinking ship.
6. He must be familiar with survival gear, including all signaling devices provided in the lifecraft of a ship. He must know where this gear is stowed; how to use it; how to secure it to the lifecraft; how to keep it in a state of constant readiness.
7. He must know how to care for himself and his shipmates if he becomes a survivor, either on a raft or in the water, supported either by a life preserver or by his own effort.
8. He must be thoroughly familiar with the assigned tasks and the bills on his ship's watch, quarter, and station bills which are put into effect when the ship is in danger of sinking or when survivors from a stricken vessel are to be taken aboard.
9. He should be familiar with the survivor rescue methods that have proved to be the most satisfactory.

The Navy, in order to facilitate knowledge of survival equipment, in order to demonstrate how to use it, and in order to teach men how to react in emergency, has set up shipboard training in abandon ship procedures in survival in the water; has taught survival methods in the use of equipment, etc., in schools; has considered making a rate which will place experienced and technically qualified personnel aboard all vessels; writes directives to all ships and personnel, and has ordered a revision of the Training Manual, Handbook of Survival in the Water, which will be published in 1952. It is to be remembered that a man must know, think and respond in order to live "to fight another day." (U. S. Naval Trng. Bull., April 1952, LCDR J. R. Pendleton, USNR)

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What Should A Patient With Malignancy Be Told?

This all-important question has troubled physicians and harassed the relatives of doomed patients ever since malignant tumors were first recognized. In

spite of centuries of experience there still exists no uniformity of opinion on all aspects of this complicated problem.

Advancements in the diagnosis and treatment of malignancy have made necessary the discussion of the diagnosis in certain situations, and it is in these situations that professional opinion is almost unanimous.

If symptoms and physical signs suggest the possibility of a malignant tumor, the patient should be told enough to allow a decision for specialized examinations and/or biopsy. Often, mere mention that further diagnostic procedures are advisable is sufficient. If specific reasons are not required, it is well to spare the patient the anxiety which open discussion is sure to produce. Patients often recognize the rationale of such investigations and are willing to proceed. Telling these patients of the possibility of malignancy does not aid the diagnosis, but will increase their anxiety.

However, if a nonspecific recommendation does not produce the necessary consent, the patient undoubtedly should be told that the additional examinations are advisable in order to rule in or rule out malignancy. No patient should be allowed to curtail a full diagnostic investigation, without being acquainted with the reasons, so that his or her decision will be based on a full knowledge of the facts and possibilities.

If a diagnosis of malignancy (or as reasonable a diagnosis as is possible by means short of a major operation) has been made, it is usually necessary to tell the patient the facts as exactly as they have been determined. This is necessary in most instances in order to justify either a radical operation or prolonged radiation therapy. Most people react well to this information and it is generally recognized that it is inadvisable to attempt to treat a person for malignancy and pretend that the condition is benign.

As is the case in every illness, each case must be individualized. The above observations commonly do not apply to children. In every case the information should be imparted in a way which avoids fear as much as possible but is still truly informative. Reassurance which is justifiable should be included. The word cancer is best not mentioned unless the patient speaks it first.

The greatest divergence of opinion among physicians and laymen exists in the case where it has been determined that the malignancy is incurable.

If the patient is the head of a household or has other serious responsibilities, the obligation to acquaint him with the true situation is almost absolute. Many doctors and most laymen recognize this as a moral and ethical responsibility which cannot be avoided.

In the case of others with incurable malignancy there is a tendency to avoid a factual explanation and often an organized effort is made to explain the clinical picture on the basis of a benign condition or to represent the operation or other treatment as curative. The difficulty with this procedure is that, in spite of the most artful explanation, and despite the most devious and clever management, the patient will eventually reach a clinical state which he recognizes without doubt as a fatal one.

At this stage it is as difficult (or even more so) to be honest with the unfortunate as it was originally. He realizes that he is incurable, and all the

reassurances given by his doctor and relatives must appear to him as deceitful and somewhat short of satisfactory, however well-intentioned they were at the time. Such a person must leave this life with a feeling that he has been deprived of friendship at a time when it means the most.

Doubt and fear may be more devastating than a knowledge of the true facts, even though the true facts in the case of incurable malignancy are certainly not the best. A patient who wishes to know what his condition is, is often actually relieved to know the bitter truth.

In this connection it has been observed that people vary in the persistence with which they seek the truth when they suspect that a malignancy is incurable. For this reason it is well to answer their questions as soon as they are put, but to do so originally in a general and nonspecific fashion, without stating any actual untruths. Some people will not ask for more detailed information, and apparently derive a considerable amount of comfort from an indefinite answer. When the truth is hinted at but not stated too specifically the patient may always entertain in his mind the possibility that all hope is not lost.

Other people, however, are aggressive in their questions, and continue to seek the detailed facts. For these it is probably better to furnish honest answers, on a grudging scale, so that the quest for truth may be abandoned at any time, and leave that lingering doubt which is some comfort at least. Some will pursue the facts until a complete story has been given them, and will feel better for it. (Editorial, J. Indiana M. A., April 1952)

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Respiration and Circulation During and After Inhalation of Various Concentrations of Carbon Dioxide

Experiments on 38 healthy subjects were conducted to obtain more complete data about respiratory and circulatory responses to carbon dioxide, as one phase of the development of an adequate carbon dioxide toxicity chart.

The study of the hypocapnia effect (drop of the partial pressure of carbon dioxide in the alveolar air below initial level after transition from carbon dioxide to air), indicated that 7 % carbon dioxide has a narcotic action commensurate with the stimulatory effect on the respiratory center.

A group of instructors at the Escape Training Tank showed a lower respiratory response to carbon dioxide and low oxygen than a group of laboratory personnel. A physiological test based upon response to low oxygen and high carbon dioxide is being considered for the selection of underwater swimmers. There seems to be a difference between the 2 groups in tolerance to carbon dioxide. Efficient underwater swimmers among the instructors at the tank do not increase their respiration as much as the other groups tested. This suggests that men who have this natural tolerance to carbon dioxide will be better underwater swimmers. (Proj. NM 002 015.03.06, MRL, U. S. Naval Submarine Base, New London, Conn., 6 March 1952, K. E. Schaefer, LT E. R. Cornish, Jr. (MC) USNR, HMC C. A. Lukas, USN, & C. R. Carey)

Surgical Emergencies Resulting From Corpus Luteum Cysts and Hematomas

The development of a small corpus luteum cyst or hematoma in the ovary is not uncommon, for varying degrees of hemorrhage and cystic enlargement normally occur during the menstrual cycle or during pregnancy. The majority of these cysts and hematomas regress spontaneously without producing clinical symptoms. A few, however, enlarge beyond the norm, become pathological, and create surgical emergencies of various natures.

Emergencies resulting from corpus luteum cysts and hematomas are not too uncommon, although relatively few reports have appeared in the literature. In most of the reported cases the complications have been due to rupture of the corpus luteum with resulting hemoperitoneum. Few isolated cases of other types of complications have been described.

In an attempt to summarize the various surgical complications that result from a corpus luteum, the following study was undertaken. It comprises a review of material from the departments of surgery and gynecology of St. Joseph Hospital, Milwaukee, covering a period of 5 and 1/2 years (1946-1951). During this period a total of 28,852 obstetrical-gynecological patients were admitted, among whom 20 surgical emergencies, of 4 major types of complications, resulting from corpus luteum cysts and hematomas were encountered. In 16 cases rupture of the corpus luteum resulting in hemoperitoneum was responsible, in 2 strangulation by torsion of the ovarian pedicle, in 1 obstruction of labor, and in 1 a marked cystic enlargement producing abdominal distention. In the last case, a corpus luteum cyst of pregnancy grew to a huge size during gestation so that its surgical removal, after the delivery of the infant through the normal route, was necessary.

The ovarian pathology in all these cases was confirmed by microscopic examination of the specimen submitted to the laboratory.

Rupture may occur during sleep, during coitus, or during the performance of ordinary work. All the emergencies brought about by rupture occur during the second half of the menstrual cycle. The highest incidence of rupture is between the ages of 18 and 35.

In most of the cases the condition is misdiagnosed and the cases parade under false headings such as acute appendicitis and/or ectopic pregnancy. The sudden onset of symptoms of intraperitoneal hemorrhage in any female of childbearing age during the second half of the menstrual cycle should lead the examiner to suspect rupture of the corpus luteum.

While it is readily agreed that many innocent corpora lutea suffer unnecessary surgical abuses, it must be remembered that this generally innocuous organ may in certain circumstances undergo pathological changes necessitating the utmost in diagnostic acumen and immediate surgical intervention. (A. M. A. Arch. Surg., April 1952, T. Taniguchi, J. A. Klieger & M. J. Kuhn)

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Kerosene Intoxication

In the area served by the Rhode Island Hospital kerosene ingestion is a frequent cause for admission to the pediatric service. Because of the debatable issues in the literature regarding its treatment, the authors reviewed the cases of 71 patients admitted to this hospital between the years 1941 and 1950. These patients have been treated in a number of ways, and the authors present their method of therapy.

Description of Technic. Histories were examined to ascertain the following facts: time elapsed prior to hospitalization, estimated amount ingested, place obtained, and whether or not vomiting occurred. The month and year of admission and the age of the patient were also recorded. The following clinical observations were studied: symptoms and signs, classified according to involvement of respiratory, gastrointestinal, and central nervous system; fever; genitourinary findings, and length of hospitalization.

The following laboratory data were available: white blood cell count, in 83.1 % of the cases; urinalysis results, in 80.3 %, and chest roentgenogram, in 62.0 %. Treatment was studied as to whether or not lavage was done.

It is significant that the large majority of the cases were the result of accidental ingestion of kerosene by infants and children exposed to kerosene in easily accessible places in the family drinking utensils, which were usually used because of a defective stove. In a large number of cases the air vent for the fuel reservoir was incriminated.

A plea was made to educate families with kerosene stoves concerning their potential dangers, and the suggestion was made that perhaps manufacturers could relocate the fuel reservoir air vent in a less accessible place.

Pneumonia was the most serious of the various clinical effects. Lavage was done at admission on 74.6 % of the patients; pneumonia developed in 35.8 % of them. Of the patients on whom lavage was not done, 52.9 % had subsequent pneumonia. Other manifestations were treated symptomatically.

Treatment of kerosene ingestion should be aimed at a rapid and as thorough as possible removal of the ingested material from the gastrointestinal tract. This necessitates the use of the stomach tube and copious lavage. Although not used in this series of cases, saline cathartics and high colonic irrigations are also recommended.

In 19 cases, or 73.4 %, with positive roentgenographic findings no positive auscultatory findingswere recorded.

There were no deaths in this series. However, there is a significant overall mortality rate in kerosene ingestion of 4.75 %. (A. M. A. Am. J. Dis. Child., April 1952, R. B. Olstad & R. M. Lord, Jr.)

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Mental Health

Many people, when they hear the term mental health think first of mental illness. But mental health is far more than merely the absence of mental illness.

Mental health is something all of us want for ourselves, whether we know it by name or not. When we speak of happiness, or peace of mind, or enjoyment, or satisfaction, we are usually talking about mental health.

Mental health has to do with everybody's everyday life. It means the overall way that people get along - in their families, at school, on the job, at play, with their associates, in their communities. It has to do with the way that each person harmonizes his desires, ambition, abilities, ideals, feelings and his conscience in order to meet the demands of life as he has to face it. It has to do with:

1. How you feel about yourself.
2. How you feel about other people.
3. How you are able to meet the demands of life

There is no line that neatly divides the mentally healthy from the unhealthy. There are many different degrees of mental health. No one characteristic by itself can be taken as evidence of good mental health, nor the lack of any one as evidence of mental illness. And nobody has all the traits of good mental health all the time.

One way of describing mental health is to describe mentally healthy people. Just knowing what mental health is doesn't mean you can go out and be mentally healthy, but knowing can help you to think straight about it.

Mentally healthy people are:

Good friends
Good workers
Good mates
Good parents
Good citizens

(National Assn. for Mental Health)

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Naval Correspondence Course

The U. S. Naval Correspondence Course Center, Brooklyn, N. Y., is now releasing an officers' course - Logistics, NavPers 10902. It is a 6 assignment course and carries 12 retirement and promotion points. At the risk of oversimplification, logistics may be defined as the art of having the right quantity and quality of men and material, at the right place, at the right time. To obtain the course in logistics, Volunteer Reservists should write to the commandant of their home naval districts and ask for application Form NavPers 992. After the form has been filled out it should be returned to the commandant. He will endorse it and forward it to the U. S. Naval Correspondence Course Center, Building "RF", Brooklyn 1, N. Y. Organized Reserve Unit members may obtain application Form NavPers 992 from their Units, where they will be endorsed by the commanding officers and sent directly to the Center. Regular Navy personnel make application on Form NavPers 992 through official channels.

Chief Petty Officers may take any officer course without further endorsement and other petty officers must have the endorsement of their commanding officers that they are considered potential officer material. (Naval Correspondence Course Center)

Course in Radiobiology

Announcement has been made by the Armed Forces Special Weapons Project of a course for medical officers in radiobiology, to be given at Reed College, Portland, Oregon.

The first part of the course, extending from 4 August to 13 September 1952, will consist of a general review of basic mathematics and physics. The second phase of the training, commencing 20 September 1952, will consist of a 15 week semester course in radiobiology. This will include instruction in nuclear physics, biophysics, human genetics, radiochemistry and the biological effects of ionizing radiation. The students will also be encouraged to attend ward rounds and seminars at the University of Oregon Medical School. Upon the completion of this course at Reed College, the students will attend the 1 week Staff Officer's atomic weapons orientation course at Sandia Base, Albuquerque, New Mexico during February 1953, following which they will receive a 3 month period of "on-the-job" training in practical aspects of radiological safety at the Oak Ridge National Laboratories, Oak Ridge, Tennessee. During this time at Oak Ridge, they will also receive the course entitled "Techniques of Using Radioisotopes".

The objectives of this training program are to provide medical officers with sufficient technical background to serve as Staff Advisors in all phases of the Medical Aspects of Atomic Defense; as advisors in the medical problems associated with the use of atomic reactors for power purposes, and as instructors in the various service training centers in this specialty.

Requests are desired immediately from medical officers of the regular Navy and Naval Reserve in the ranks of Commander and below, who are interested in this field of study. In accordance with BuPers Circular Letter 49-50 of 7 April 1950, each request for this course must contain the applicant's agreement to serve on active duty for a period of 3 years, including the time covered by this instruction. Requests must reach BuMed prior to 27 June 1952, and may be made by dispatch if the time element involved requires such action. Dispatch requests must be confirmed by a following letter. (Professional Div., BuMed)

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Third Annual Medical Military Symposium

The third annual Medical Military Symposium for all Armed Forces of the United States will be held at the U. S. Naval Hospital, Philadelphia, Pa., 20 -25 October 1952, under the auspices of the District Medical Officer, Fourth Naval District.

As in the past the program for this symposium has been designed to provide the Reserve and Regular Medical Department officer with the latest information and technics to be employed in the many aspects of military medicine and dentistry. The subjects will be presented by speakers of outstanding prominence in their specialities. Special sessions are planned for officers in the medical, surgical, dental and administrative fields.

Steps have been taken to obtain retirement point credit for those Reserve Medical Department officers attending under training or appropriate duty orders. It is planned to issue appropriate duty orders without pay to Naval Reservists who reside in the Fourth Naval District at the time of registration. Inactive Naval Reserve Medical, Dental, Medical Service and Nurse Corps officers residing in other naval districts and the Potomac River Naval Command who desire to attend this symposium should submit their requests to the commandant of their home naval district for training duty orders without pay covering the number of days which they plan to be in attendance. Officers of the Medical Department on active duty may be given "Authorization Orders" (no expense to the Government) in accordance with current instructions.

The complete program and full information will be available at the District Medical Office, Building 4, U. S. Naval Base, Philadelphia 12, Pa. All correspondence and inquiries concerning this symposium should be forwarded to that address. (Reserve Div., BuMed)

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Course in Photofluorographic Interpretation

A 3 months course in photofluorographic interpretation given at the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland, is available to medical officers of the regular Navy and the Naval Reserve. This course serves as a background for further training in internal medicine, diseases of the chest and radiology.

Interested medical officers should submit an official request to the Bureau of Medicine and Surgery, Attention Code 7212 for consideration. No service agreement is required. Reserve medical officers are eligible for this training providing they will have at least one year of obligated service remaining upon completion of their instruction. (Preventive Med. Div., BuMed)

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Proper Designation of Hospital Corpsmen

The written and spoken word appear repeatedly in error with reference to hospital corpsmen of the various pay grades. The table presented on the following page is designed to serve as a guide.

Pay Grade	Abbr. of Rate[1]	Written[2] and Spoken[3]
7	HMC	Chief Hospital Corpsman
6	HM1	Hospital Corpsman, first class
5	HM2	Hospital Corpsman, second class
4	HM3	Hospital Corpsman, third class
3	HN	Hospitalman
2	HA	Hospital Apprentice
1	HR	Hospital Recruit

1 Ch. VIII, Abbreviations, Navy Correspondence Manual, Rev. July 1951.
2 Article C-2102 BuPers Manual, 1948.
3 Custom and usage.

In general, enlisted men of the Hospital Corps are referred to as "Hospital Corpsmen," a "Hospital Corpsman" or "Corpsman." (Personnel Div., BuMed)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Navy Medical School, National Naval Medical Center, Bethesda 14, Maryland, giving full name, rank, corps and old and new address.

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List of Recent Reports Issued by Naval Medical Research Activities

Naval Medical Research Institute, NNMC, Bethesda, Maryland,

Action of Salivary Lysozyme on Micrococcus Lysodeikticus, NM 008 012. 04.01, 20 December 1951.

Studies on the In Vitro Multiplication of Newcastle Disease Virus in Chicken Blood. III. A Stabilizing Substance for Newcastle Disease Virus Present in Chicken and Mammalian Blood Cells, NM 005 048.11.03, 27 December 1951.

Naval Medical Field Research Laboratory, Camp Lejeune, North Carolina

Adult Reading Developmental Training: Description, Results, and Analysis, NM 005 052.18.01, April 1952.

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From the Note Book

1. RADM H. L. Pugh, Surgeon General of the Navy, has been notified of his recent election to active Fellowship in the American Surgical Association. Active membership in the Association does not exceed 250 Fellows and an Honorary membership of 25. Eligibility for Fellowship requires that the applicant be 30 years of age, a graduate of 5 years' standing from a recognized medical college and has established a reputation as practitioner, author, teacher or original investigator, and has been recommended for Fellowship by the Council of the Association. (PIO, BuMed)

2. The chairman, civilian and military members of the Armed Forces Medical Policy Council, Office of the Secretary of Defense, visited the Naval Medical Research Laboratory, U. S. Submarine Base, New London, Conn., on 28 April to observe medical research projects currently under study. On the following day, the council members boarded a submarine and made an operational dive so that they could view first-hand the environmental conditions under which submarine crews operate and the special medical problems involved in maintaining the high standard of health conditions aboard submarines. (PIO, BuMed)

3. Dr. Howard T. Karsner, an international authority in the science of pathology, and Medical Research Advisor to the Surgeon General of the Navy, received the "Gold Headed Cane" of the American Association of Pathologists and Bacteriologists on 1 May 1952. The cane, a malacca stick with a gold head, is awarded as a token of recognition by fellow members of the Association for services to humanity and is one of the highest honors an American pathologist or bacteriologist can receive. The custodianship of the cane is awarded at irregular intervals and lasts throughout the recipient's lifetime. (PIO, BuMed)

4. The Committee for Medical Education for National Defense (M.E.N.D.) met on 28 April 1952. The Committee is composed of Dr. S. Olson, Dean of the University of Illinois; Dr. J. B. Youmans, Dean, Vanderbilt University Medical School; Dr. S. Kimbal, Dean, University of Buffalo Medical School; Dr. L. W. Hanlon, Assistant Dean, Cornell University Medical College; Dr. J. B. Lagen, Associate Dean, University of California Medical School, together with CAPT R. H. Fletcher (MC) USN; COL F. L. Wergeland (MC) USA; COL R. Jones (MC) USAF; Dr. Flynn, C.D.A., and Dr. R. E. Butler, USPHS. An orientation program was prepared, and covered the period from 28 April to 2 May 1952. The meetings were held at the Walter Reed Army Medical Center; U. S. Naval Medical School, Bethesda, Md.; National Institutes of Health, Bethesda, Md.; Army Chemical Center, Edgewood, Md.; and Brooke Army Medical Center, San Antonio, Tex. (NavMedSchol, NNMC, Bethesda, Md.)

5. The golden anniversary ceremonies of the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Md., will be held from 24 May until 27 May 1952. CAPT J. L. Enyart (MC) USN is the present Commanding Officer of

the School. Open House will be held 24 and 25 May 1952, and the H. W. Smith Lectureship in Medicine will be given on 27 May 1952. The speakers will be RADM H. L. Pugh (MC) USN, Surgeon General, U. S. Navy, and COMO R. A. Kern (MC) USNR, Professor and Head, Department of Medicine, Temple University Medical School. (NavMedSchol, NNMC, Bethesda, Md.)

6. American made dextran used in a study was fractionated to an average molecular size of about 70,000. It has been administered to more than 100 patients suffering from a variety of acute and chronic diseases without any untoward reactions or evidence of impairment of renal or hepatic function. Plasma volume was expanded for from 6 to 24 hours following the infusion. From 30 to 50 % of the amount given was excreted in the urine during the following 72 hours. The fate of the remainder is not clearly understood, but evidence is accumulating to indicate that it is broken down to glucose and metabolized. (Am. J. Med. Sci., April 1952, J. S. Wilson et al)

7 . A description is given of 16 families in which some children were vaccinated with B.C.G. and others not, and in which all had been exposed to a known source of infection. Among the 22 children in the non-vaccinated group, 21 developed primary tuberculosis. In the 22 of the B.C.G. vaccinated group, 2 at most showed some evidence of infection. The protective value of B.C.G. is striking, both when the source of infection is within the family, and when it is outside. (Brit. M. J., 29 March 1952, A. W. Dickie)

8. Because the application of large doses of cortisone usually causes: (1) a masking of symptoms; (2) delayed healing; (3) marked retention of fluids; (4) other unfavorable manifestations, the extraction of teeth, and particularly the insertion of immediate dentures, is contraindicated during the administration of cortisone therapy. (Dent. Dig., April 1952, D. E. Doolen)

9. A report of over 3,000 anesthesias using xylocaine hydrochloride recommends this drug as the most rapid, profound and safe local anesthestic agent thus far developed and clinically tested. (Oral Surg., Oral Med. & Oral Path., April 1952, N. L. Dubin & L. M. Foner)

10. A scientific meeting of the newly formed Blood Bank Association of New York State was held on 12 May 1952. Included in the agenda was a panel discussion on platelets, transfusion reactions, demonstration of Dr. Cohn's fractionation machine, and a discussion on mass blood grouping and typing in an emergency.

11. The Army Medical Library, located in Washington, D. C., has recently become the Armed Forces Medical Library by direction of the Secretary of Defense. Subject to the authority, direction and control of the Secretary of Defense, the Library will be under the management control of the Secretary of the Army. Its organization will consist of a Director, a Librarian, and Advisory

Group, and a staff of professional, technical and clerical personnel. The Director will be an officer selected by the Secretary of the Army, with the approval of the Secretary of Defense, from the medical profession of the Army, Navy or Air Force. (Armed Forces Medical Policy Council, Office SecDef, 26 April 1952)

12. RADM H. L. Pugh, Surgeon General of the Navy, delivered a lecture on "Oral Medicine" to the student body and faculty of the Jefferson Medical College and Medical Center, Philadelphia, Pa., on Tuesday, 29 April 1952. (PIO, BuMed)

13. "The Human Heart," a new series of 8 quarter-hour dramatic radio transcriptions on diseases of the heart and circulation, sponsored by the Public Health Service of the Federal Security Agency, is now available for community health education. Transcriptions are available through the Communication Materials Center, Columbia University Press, 417 West 117 Street, New York 27, New York. (PIO, NIH, FSA, PHS, 21 April 1952)

14. Excellent results may be obtained in the treatment of trachoma by the local or oral use of the sulfonamide drugs and aureomycin. Terramycin locally also is effective. Surgical procedures, such as evacuation of follicles, removal of grossly diseased tissue and plastic operations in Stage IV have definite indications. (New Orleans M. & S. J., April 1952, J. W. Rosenthal)

15. Ten cases of leukemia of various types treated with ACTH or cortisone are reported. Three of these cases showed no improvement. Seven cases manifested some type of favorable response, but only 5 cases could be said to have had a remission in the course of the disease. (J. Lab. & Clin. Med., April 1952, W. S. Adams, W. N. Valentine, S. H. Bassett & J. S. Lawrence)

16. "Experiences in Spontaneous Regression of Neoplastic Disease in Man" appears in Texas Reports on Biology and Medicine, Spring volume, 1952, F. W. Stewart.

17. Two articles discussing Incontinentia Pigmenti appear in the April 1952 issue of the British Journal of Dermatology. H. Haber of St. John's Hospital for Diseases of the Skin and G. H. Findlay of the University, Pretoria, are the authors. (Note Medical News Letter, Vol. 18, No. 6, 21 Sept. 1951.)

18. The methods of performing travel activities, used by many individuals with complete or partial paralysis of the lower trunk and both lower extremities, are described in the American Journal of Physical Medicine, April 1952, M. Hoberman and E. R. Cicenia.

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BUMED CIRCULAR LETTER 52-41 30 April 1952

From: Chief, Bureau of Medicine and Surgery
To: All Naval Hospitals

Subj: Discharges from the sick list of individuals waiting to appear or who have appeared before a physical evaluation board, report on

Ref: (a) BUMED Cir Ltr No. 50-38
(b) BUMED Cir Ltr No. 50-78
(c) Art. 23-146, ManMedDept

1. The report required by reference (a) and as modified by reference (b) is no longer required; therefore, references (a) and (b) are cancelled.

2. Deletion of reference (c) is authorized and will be incorporated in next advance change to the Manual of the Medical Department.

3. After the above cancellation action has been noted, this letter shall also be considered cancelled.

H. L. Pugh

The above letter will not be printed in the Navy Department Bulletin.

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BUMED CIRCULAR LETTER 52-42 2 May 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations having a Medical Department Representative

Subj: Routine immunization for diphtheria and special immunizations for diphtheria, cholera, typhus and yellow fever; clarification of

Ref: (a) Joint Army-Navy-Air Force publication: "Prevention and Control of Communicable Diseases of Man--Immunization Procedures", NavMed P-1340 (SR 40-230-1; AFR 160-102) of 8 October 1951
(b) Section VIII, Chapter 22, Manual of the Medical Department, U. S. Navy
(c) ALNAV 89-50, NDB Jul-Dec 1950, 50-714, p. 63
(d) "A Guide to Worldwide Immunization Requirements", 9th Edition, Military Air Transport Service of 12 January 1952

1. Routine diphtheria immunization requirements as specified in reference (a) will be held in abeyance until a combined tetanus-diphtheria toxoid becomes available. Until the combined toxoid becomes available, diphtheria will remain in the special rather than in the routine immunization category.

2. Reference (a) is currently being revised with respect to special immunizations. Until the revision is promulgated, all the provisions of references (b) and (c), governing special immunizations for travel (i.e., diphtheria, cholera, typhus and yellow fever) will be followed as well as reference (d) as it relates to local requirements.

C. J. Brown
Acting

The above letter will not be printed in the Navy Department Bulletin.

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