NavMed 369

UNITED STATES NAVY

MEDICAL NEWS LETTER

Editor - Captain L. B. Marshall, MC, USN (RET)

Vol. 26 Friday, 22 July 1955 No. 2

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Graduate Training in Navy Hospitals

Applications for assignment to residency training duty are desired from Regular medical officers and those Reserve medical officers who have completed their obligated service under the Universal Military Training and Service Act, as amended. The following chart lists those Navy hospitals which currently have vacancies, and the specialties in which these vacancies exist:

	Bethesda, Md.	Chelsea, Mass	Oakland, Calif.	Philadelphia, Pa.	Portsmouth, Va.	San Diego, Calif.	St. Albans, N. Y.
Anesthesia	x	x					
General Practice		x			x	x	
Internal Medicine		x				x	x
Neurology	x			x			
Orthopedics	x	x					
Otolaryngology				x			
Pathology	x		x	x		x	
Pediatrics			x				
Psychiatry	x		x	x			
Radiology	x	x	x			x	
Surgery					x	x	x
Urology						x	

Letters of application should be forwarded via official channels to the Chief of the Bureau of Medicine and Surgery, and should include an obligated service agreement prepared in accordance with the provisions of BuMed Instruction 1520. 7.

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Notice

Due to the critical shortage of medical officers, the Chief, Bureau of Medicine and Surgery, has recommended, and the Chief of Naval Personnel has concurred, that Reserve medical officers now on active duty who desire to submit requests for extension of their active duty for a period of three months or more will be given favorable consideration.

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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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The Use of Phenolized Rabies Vaccine in Texas

The use of vaccine for the emergency treatment of rabies is widely recommended by public health authorities largely because of the remarkably low mortality rate among vaccine-treated persons. Physicians and health officers in highly endemic areas are, unfortunately, confronted with the management of both real and imaginary exposures. Those who have imaginary exposure and suffer from "rabiphobia" constitute a formidable group which certainly can disturb the physician's professional equilibrium. It is shown that the complications of antirabic vaccination are sufficiently common that this treatment is not recommended for those who suffer from "rabiphobia" in the absence of a wound by the teeth of a rabid animal.

Since 1934, a modified Semple, phenol-treated rabies vaccine has been prepared and distributed throughout the State by the Texas State Department of Health. This vaccine is a brain tissue suspension from rabbits infected with a "fixed strain" of rabies virus.

The decision to give or to withhold antirabic vaccine treatment following exposure to a rabid animal is left entirely to the attending physician. The Texas State Department of Health makes certain recommendations some of which follow.

All wounds inflicted by animals should be washed immediately and thoroughly for 15 or 20 minutes with a warm strong soap solution. A positive diagnosis of rabies, confirmed by laboratory test whenever possible, should be made by a veterinarian before rabies vaccine is administered.

Antirabic vaccination is indicated for all direct exposures, that is, teeth wounds made by rabid animals. (a) The vaccine should not be given merely because of minor cuts or abrasions in the absence of a bite; minor abrasions or bruises made by the teeth over the clothing do not indicate the

need of antirabic treatment. (b) Scratches made by the animal's claws do not indicate need of antirabic treatment.

In case of severe bites about the head or face, or severe multiple lacerations, the vaccine treatment should be intensified by increasing the total dose to 21 or 28 doses, given two a day. If prophylactic antirabies serum is available, it should be given without delay. When potentially serious systemic reactions occur, the use of the vaccine should be discontinued unless risk of infection is great.

"Treatment paralysis" is a definite hazard.

Persons exposed to rabies ordinarily know when the exposure occurred and where the virus was deposited, so that the local treatment of wounds inflicted by rabid animals has long been practiced as one of the most important means for prevention of rabies. Shaughnessy and Zichis (1943) showed experimentally that 30% soft soap solution is as effective as nitric acid in this early treatment for prevention of rabies. Cautery of animal bite wounds is apparently no longer widely used (van Rooyen and Rhodes). In this study, it was not possible to evaluate the role of the local wound treatment in the prevention of the disease. According to the completed records, about 66% of those who received antirabic vaccine were actually bitten by laboratory proved positive rabid animals. The location and severity of the wounds in this series of treated persons varied greatly, with a considerable number reported multiple and severe. The mortality from rabies is thought to depend particularly on the quantity of the virus inoculated, the site of the injury, the degree of trauma, and the virulence of the virus. In twelve deaths from rabies, it was interesting to note that, in only one instance was the bite wound classified as severe. This one case was in military personnel and the wound was a deep bite wound on the face which was given immediate treatment in the first-aid center.

Because it is expected, in a large series of rabies treatments, to encounter vaccine failures, and because none appeared in 8430 persons included in this study, it appeared that the vaccine treatment was an effective preventative measure. Even when the twelve known deaths from rabies in unvaccinated persons are considered, the authors believe that the mortality rate in persons who suffered bites by rabid animals is much less than the 5 to 15% mortality rates usually cited.

As Sellers (1948) has stated, it is not hydrophobia but "rabiphobia" which constitutes the major and most troublesome problem to the practicing physician and health officer. The administration of antirabic vaccine to persons actually bitten by known or strongly suspected rabid animals is a justifiable procedure, in that danger of the disease is greater and more serious than any ill-effect of the vaccine. However, physicians are prone to overlook the fact that the danger of treatment far exceeds that of rabies and "rabiphobia" in presumed exposures other than those actually occurring

through bites by known or strongly suspected rabid animals. Sellers (1948) has reported that, of 50,000 persons taking antirabic vaccine, treatment paralysis occurred at the rate of one in 7200. The treatment paralysis rate cited by McKendrick (1940) for a larger series was one in 3500 persons treated with desiccated cord vaccine and one in 8500 persons treated with phenolized vaccines. Applebaum, Greenberg, and Nelson (1953) reported a treatment paralysis rate of one in 2025 persons treated. In Los Angeles County, Calif., during 1940 - 1945, a rate of treatment reaction of one in 1194 persons was cited (Redewell and Underwood, 1947). However, in the present series of 8430 persons treated, the severe post-vaccinal reaction rate was one in 527, or one in 870 in the 13,925 treatments distributed and used. Various theories of the cause of treatment paralysis have been advanced with the allergic response theory seeming to be the most plausible. However, the possibility of modified rabies infection should not be entirely overlooked. The light-up of poliomyelitis or other latent viral infections is also a possibility to be considered in studying these cases of reaction to rabies vaccine.

The avianized rabies vaccine (Tierkel, et al., 1949), which is now being widely used in immunizing animals, would appear promising in overcoming some of the objections to the present human vaccines. The use of hyperimmune serum also offers hope for a more effective prophylaxis of rabies virus infection.

The use of the vaccine is not at all an entirely harmless procedure and should be restricted to persons definitely at risk of rabies infection. (Cook, E. B. M., et al., Report on the Use of Phenolized Rabies Vaccine in Texas from 1949 through 1953: Texas Reports on Biology and Medicine, 13: 234-250, Summer 1955)

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Phenylindanedione in Myocardial Infarction

Since the advent of anticoagulant therapy in thromboembolic disease, a number of preparations have been utilized to gain the desired results. Continuing efforts have been made to find the ideal anticoagulant. Such a preparation should have the following properties: (1) economical, (2) equally utilized and easily administered by any route, (3) consistent effectiveness in per kilo dose, (4) rapid onset of, and recovery from, the desired effect, (5) quickly controlled by antidote, and (6) free of serious reactions.

Soulier and Gueguen first reported the clinical use of 2 phenyl-1, 3-in-danedione as an anticoagulant in 1947. The drug has a coumarin-like action but is not a coumarin derivative. It is reported to have a rapid onset of action, a wide range of therapeutic safety, and few toxic reactions.

This drug has been used at the Henry Ford Hospital as the routine oral anticoagulant since June 1953, and this article reports experience in

251 consecutive cases of proved myocardial infarction to whom it had been administered for a minimum of 48 hours. The cases were unselected, except to exclude those patients in whom any type of oral anticoagulant was contraindicated, as judged by the usual and accepted criteria and to exclude all cases receiving the drug for less than 48 hours.

The majority of the patients were in the sixth and seventh decades of life, 97 in the sixth and 100 in the seventh. Sixteen patients were in the eighth decade, 28 in the fifth, and 9 in the fourth decade.

Each infarct was classified as to severity. Class 1 infarcts, considered mild, included incomplete or subendocardial infarcts accompanied by a slight leukocytosis, elevation of the erythrocyte sedimentation rate, or hyperpyrexia. Class 2 infarcts were moderately severe and comprised transmural infarcts giving rise to significant elevations of the leukocyte count, erythrocyte sedimentation rate, and temperature. Class 3, or severe infarcts, comprised those meeting the criteria for Class 2 and having two or more of the following complications: (1) persistent hyperpyrexia of over one week; (2) protracted pain of over 12 hours; (3) prolonged shock of over 12 hours; (4) significant arrhythmia; (5) acute pulmonary edema; or (6) additional thromboembolic phenomenon.

The drug has the most rapid onset of action of any of the oral anticoagulants. The therapeutic range of hypoprothrombinemia was relatively easy to induce and maintain although dosage varied moderately from patient to patient. Prothrombin activity returns rapidly to normal following discontinuation of the drug. Excessive hypoprothrombinemia may be readily controlled by a brief period of drug omission and/or small to moderate doses of emulsified vitamin K_1 oxide. No instance of drug resistance was encountered.

The drug was equally effective in all cases regardless of sex, age, or race.

The incidence of thromboembolic complications despite proper anticoagulant therapy is less with phenylindanedione than with any other anticoagulant employed in a similar role by this clinic.

Hemorrhagic complications incident to the use of this drug were, for the most part, minor. Nevertheless, two deaths in which hypoprothrombinemia played a definite role, and one in which it was probably the cause, are reported. However, the over-all incidence of hemorrhagic complications was well within the expected range.

Sporadic instances of grave complications due to idiosyncrasies to the drug have been reported. No such reactions were encountered in the present series although two cases of skin eruption are reported.

Based upon the authors' experience, phenylindanedione is not the ideal anticoagulant. It is, however, equal or superior to other oral preparations in general use in the anticoagulant therapy of the acute phase of myocardial infarction. (Breneman, G. M., and Priest, E. McC., Experience

with Phenylindanedione in the Management of Acute Myocardial Infarction: Am. Heart J., 50: 129-135, July 1955)

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Treatment of Acute Traumatic Renal Insufficiency

The syndrome of lower nephron nephrosis was probably first described by Minami, but it was not until Bywaters and Beall, in 1941, and Lucké, in 1946, described the syndrome, that the medical world awakened to its full importance. The writer believes that the term "acute tubular nephrosis," as proposed by Moon, more accurately describes the pathological picture. However, the term "lower nephron nephrosis" has entered medical language and will probably remain.

No less than 50 different causes have been enumerated for this syndrome. These may be grouped under the following headings: (1) prolonged shock from any cause; (2) trauma; (3) hemoglobinemia; (4) toxins, bacterial or chemical: (5) sensitization reactions; (6) radiation; and (7) anoxemia.

The clinical course of acute tubular nephrosis is fairly uniform regardless of the numerous causes, because of the time necessary for the kidney to regenerate from the insult causing the syndrome. Swann and Merrill have recently given an excellent discussion of this syndrome.

The oliguric phase is the period of reduced urinary output, in which the volume is less than 400 cc per day. It comes on immediately after the injury and lasts a variable period, ranging from a few days to several weeks. The average duration of this phase, as found by the Army Research Team, was 9-1/2 days. During the period of oliguria, the patient's blood pressure starts to rise about the third to fifth day, and the danger of coma and/or convulsions presents itself. The cerebral signs are probably due to cerebral edema secondary to overhydration, electrolyte imbalance, hypertensive encephalopathy, and uremia.

During the oliguric phase, there may be gastrointestinal symptoms such as nausea, vomiting, and possibly diarrhea. Severe gastrointestinal bleeding may develop with higher levels of uremia.

The oliguric phase is followed by the diuretic phase, in which the urine volume is greater than 500 cc per day. During this phase, the selective absorption of the tubules is faulty and there is a marked loss of sodium, potassium, and bicarbonate ions. This salt wastage by the kidneys may continue for weeks or months, so that these electrolytes must be watched carefully and replaced.

During the first 7 to 10 days of the syndrome, the principal causes of death are pulmonary edema due to overhydration, and cardiac arrest secondary to hyperkalemia. In the diuretic phase, the principal causes of death are overwhelming infection and electrolyte imbalance.

Acute tubular nephrosis must be differentiated from oliguria secondary to dehydration; primary renal disease such as acute glomerulonephritis, acute pyelonephritis, or acute exacerbations of chronic glomerulonephritis; bilateral ureteral obstruction secondary to calculi, sulfa crystals, or metastatic carcinoma; and renal vascular lesions such as venous or arterial thrombosis.

The principles of treatment are: (1) careful regulation of fluid intake with particular care not to overwhelm the patient with fluid that cannot be excreted; (2) regulation of acid-base balance; (3) maintenance of caloric intake; (4) small frequent blood transfusions to control anemia and restore depleted proteins; (5) antibiotics and vitamins; (6) dialysis, by means of the artificial kidney in severe cases; and (7) the control of hyperkalemia. Emphsis is placed upon the use of electrolyte antagonists to potassium, and particularly to the use of adequate amounts of sodium.

The use of an osmotic diuretic such as sorbitol or mannitol is suggested in Red Cross blood, as a means of maintaining glomerular filtration during the first critical hours of shock following injury, and thereby, possibly preventing the mechanical blocking of tubules by precipitated proteins.

The care of these patients is difficult, tedious, and trying in the extreme. But it should ever be kept in mind that once over the critical oliguric phase, the kidney will probably be restored entirely to normal. This wonderful regenerative capacity justifies all efforts. The rewards are great. (Catlow, C. E., The Treatment of Acute Traumatic Renal Insufficiency: J. Urol., 73: 913-920, June 1955)

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Infectious Hepatitis in Infants and Small Children

The occurrence of hepatitis in infants and small children is well established although it is considered rare at this age. Relatively few cases have been reported, and while the clinical picture and course of the disease are reasonably well known, the laboratory findings have not been well documented. According to most observers, the disease in this age group is unusually mild, transitory, and without sequelae. On the other hand, persistent and progressive cases and fatalities have been reported. In addition, evidence has been presented that in infants and small children cirrhosis of the liver may sometimes develop as a result of viral hepatitis.

Regarding the nonicteric form of the disease in infants and small children, practically nothing is known beyond the fact that it occurs. A few cases have been recognized on clinical grounds in association with typical icteric cases during the course of epidemics. Webb and co-workers found nine nonicteric and six icteric cases in a group of children between one and three years of age, suggesting a relatively high incidence of the former.

Recently, the writers studied an epidemic of infectious hepatitis in an orphanage for infants and children under three years of age. This offered an unusual opportunity to clarify the clinical and laboratory features of the disease in this age group. The occurrence of typical infectious hepatitis with jaundice in a high percentage of new student nurses over an 8-year period led to an investigation of the infants. Conclusive epidemiological evidence was obtained that the disease was endemic among the infants and that they were responsible for the infection in the nurses. Finally, laboratory and clinical evidence of hepatitis was found in the infants. The etiologic agent was firmly established as the virus of infectious hepatitis by the presence of typical icteric cases including one small child; by the demonstration of short incubation periods; and by the demonstration of virus in the feces of two infants by the oral administration of stool preparations to adult volunteers. The present report deals with the clinical and laboratory findings in the infants and children.

Evidence supporting the diagnosis in this series was obtained from several distinct sources. First, epidemiologic observations, previously reported, indicated a high incidence of infectious hepatitis among the infants and children in the institution. Second, the presence in the feces of the virus of infectious hepatitis was actually demonstrated in two infants who were without jaundice. Third, one classic case of acute hepatitis with jaundice was observed in a small child. And finally, a large number of children were found to have abnormalities of liver function identical, with the exception of hyperbilirubinemia, to those found in the three definite cases mentioned. Thus, three infants certainly had the disease, and although the diagnosis cannot be unequivocally established in any individual case of the remaining 33, it is highly probable that most, if not all, were also infected. Because it was necessary to base the selection of the 33 cases on the degree and duration of laboratory abnormalities, it is probable that many cases have been excluded. Therefore, it would appear that the writers dealt with the more severe examples of the disease in this report.

In applying findings to the diagnosis of sporadic cases of nonicteric infectious hepatitis, caution must be observed. The diagnosis must be based on laboratory findings because the clinical picture is entirely nonspecific at this age, and indistinguishable from a variety of intestinal disturbances and low-grade infections. For the present, a presumptive diagnosis of acute nonicteric hepatitis should be reserved for cases with persistent, as well as marked, abnormalities in liver-function tests. Too much reliance should not be placed on flocculation tests alone, but the alkaline phosphatase and cholinesterase or other procedures, based on other functions of the liver, should also be performed. Therefore, it is obvious that bilirubinuria or hyperbilirubinemia are of particular diagnostic importance if present.

The tendency for the disease to run a protracted course is noteworthy. This may be peculiar to this particular group and related to the local epidemiologic situation. Thus, new susceptibles were constantly being admitted to infected wards and, in turn, becoming infected. In this way, fresh sources of virus were constantly being provided which might relight smoldering or convalescent cases. On the other hand, the protracted course may be characteristic of nonicteric infectious hepatitis at this age. Therapy, for the most part, is unsatisfactory, especially in regard to physical rest and, in addition, intercurrent infections and bouts of diarrhea are not uncommon.

The observations indicate clearly that acute infectious hepatitis is usually nonicteric in infants and small children. In the present group, over 97% fell into this category despite the probable exclusion of many cases. Because nonicteric cases are usually unrecognized and it is likely that the disease is not uncommon in this age group, it may well be responsible for many cases of obscure illness. It should certainly be considered in the differential diagnosis of all such cases, and particularly when gastrointestinal symptoms are present. Recognition is of importance because, in addition to the obvious reasons, there is the danger of contagion as well as the possibility of permanent liver damage.

Finally, the importance of the two cases with virus in the feces should be re-emphasized. These are the only cases of infectious hepatitis so far reported where virus has been found in the feces more than two weeks after onset of the acute illness. The epidemiologic importance of fecal carriers is obvious. (Capps, R. B., et al., Infectious Hepatitis in Infants and Small Children: Am. J. Dis. Chil., 89: 701-714, June 1955)

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Beryllium Poisoning

The term "beryllium poisoning" is all-inclusive and may be liberally interpreted as any pathologic condition resulting from exposure to beryllium. By way of definition, beryllosis (beryllium poisoning) is a general disease characterized clinically by pulmonary insufficiency and having the major pathologic changes in the lung. It results from the inhalation of finely divided beryllium compounds. The characteristic lesion is a granuloma. The clinical course of beryllosis ranges from acute to chronic, and the authors limit the discussion to the chronic type of the disease which is the more prevalent and the more difficult to manage.

The pathologic anatomy in chronic beryllosis is characterized by diffuse granulomatosis much like sarcoidosis. The lungs are voluminous and emphysematous with scattered fine nodules and diffuse fibrosis, which

is interstitial and nodular, and is associated with the granulomatous reaction. Giant cells are prominent and are of the Langhans type.

The symptoms at the time of onset of the chronic disease may be variable. Following termination of exposure, the onset is often delayed from months to a period as long as 11 years before the appearance of symptoms. However, it is not uncommon to find roentgenologic changes preceding clinical symptoms by as much as 2 years. The first clinical symptoms may be mild with vague indisposition, slight but persistent weight loss, weakness, easy fatigability, and occasional cough (usually non-productive and occurring most frequently in the mornings). Exertional dyspnea may often be the presenting symptom. Cyanosis and clubbing of the fingers is a frequent observation in advanced chronic cases. Sooner or later, symptoms of cardiac decompensation add to the distress of the patient, ending with chronic cor pulmonale. Rapid and shallow breathing is characteristic and, in chronic beryllosis, the alterations are similar to the disturbances seen in silicosis or cardiac disease.

Although the radiologic changes have certain definite characteristics, the x-ray alone will not, and should not, serve as the single factor to determine the diagnosis.

For purposes of convenience, many clinicians divide the chronic beryllosis x-ray pattern into three stages: (1) the stage of granularity, which is a finely granular diffuse haziness with some sparing of the apices and extreme bases where there is often compensatory emphysema; (2) the state of reticulation, when a reticulant-type pattern is superimposed on the stage (1) granular background. Often there is slight fuzziness and enlargement of the hilar areas; (3) the stage of nodulation, when there is distinct nodulation up to 5 mm. in size which does not coalesce, cavitate, or calcify and gives the appearance of a large flake "snow storm." Cor pulmonale with right-sided cardiac enlargement is common at this stage.

Chronic beryllosis is one of the progressive disabling types of diseases which has been resistant to practically all forms of therapy. Prior to the advent of ACTH and cortisone, the treatment was completely symptomatic and supportive. Pulmonary insufficiency requires frequent or consistent use of oxygen, even at rest. In mild cases, general supportive treatment with exercise to the limit of comfort is indicated; in more severe cases, bed rest and continued oxygen therapy are necessary. Penicillin-streptomycin-aerosol therapy is of value in dealing with intercurrent infections but does not appear to alter the course of the underlying disease. Specific treatment designed to aid in the elimination of beryllium, such as BAL and solubilizing agents, have been without effect.

With the advent of cortisone, distinct improvement both symptomatically and by metabolic tests is evident. Less accessory oxygen is required. There is increased vital capacity, return of energy, improved appetite, weight increase, reduction in dyspnea and cough, heightened morale, and

some degree of regression of the lesions noted roentgenologically. The regression is reversible when therapy is stopped. However, over the past several years, it is apparent that corticosteroid therapy will not effect a cure in chronic beryllosis but will definitely make the patient more comfortable and possibly retard and prevent progression of the disease to a more fibrotic state. The evident symptomatic improvement, the x-ray changes, and the sense of well-being induced by corticosteroid therapy have warranted its continued use and, thus far, have provided the single modality which has been of some benefit to these patients.

Further research in the field of therapy has shed light on the promise of utilizing chelating agents which might either filter out the accumulated beryllium or immobilize the beryllium so that it cannot be further instrumental in producing pulmonary changes.

With the greater knowledge of the epidemiology and toxicology of beryllium, the occurrence of this fatal disease can to a great measure be prevented by proper medical engineering controls.

Unfortunately, at this stage of knowledge, the patient with chronic beryllosis can be offered only early diagnosis by annual x-ray surveys of exposed populations. Upon diagnosis, it remains a matter of continued supportive therapy along with the judicious use of cortisone or ACTH and the promise of fruitful research in the field of the chelating agents. (Tebrock, H. E., Beryllium Poisoning (Beryllosis): Am. J. Surg., 90: 120-121, July 1955)

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Myelophthisic Anemia in Cancer of the Breast

Myelophthisic anemia is generally ascribed to displacement of normal marrow by space-occupying lesions, and is characterized by the appearance of immature leukocytes and erythrocytes in the peripheral blood. Not all patients with myelophthisic anemia are really anemic in the sense that the hemoglobin and hematocrit values are below normal. The appearance of immature red and white cells in the peripheral blood and the demonstration of marrow invasion are considered sufficient criteria to establish the diagnosis. Because of this, it has been suggested that leukoerythroblastosis might be a better term for this syndrome.

The development of myelophthisic anemia is a serious complication in the clinical management of cases of metastatic cancer of the breast because it is notoriously refractory to therapy. Inasmuch as many cases of metastatic cancer of the breast respond favorably to alterations in hormonal balance, it seemed reasonable to expect that some cases of myelophthisic anemia, due to cancer of the breast, might also respond to this type of therapy on the basis of regression of tumor in the marrow space.

Consequently, the cases in this study were treated with one or more of the following procedures: castration, adrenalectomy, hypophysectomy, or administration of androgens or cortisone. These therapeutic measures have resulted in temporary, but significant, remission in some cases. Hematologic remission was well correlated with regression of tumor in other areas of the body, and affords an accurate index of generalized tumor inhibition in response to therapy.

In the past, emphasis has been given to the lack of correlation between the degree of neoplastic involvement of the skeleton and the development of myelophthisic anemia. The authors' experience confirms this fact. Skeletal surveys by x-ray examination were performed in all cases in this series at intervals of 6 weeks to 2 months. All but one case had x-ray evidence of osseous metastases, varying from minimal to widespread involvement. No correlation existed between the severity of the anemia and the degree of demonstrable osseous involvement. Similarly, there was no correlation with the type of osseous metastastes. Thirteen patients had osteolytic metastases, one had osteoblastic, and 3 had mixed osteoblastic and osteolytic lesions. The development of myelophthisic anemia was unrelated to the duration of the osseous metastases. In 3 cases, the anemia and osseous metastases were discovered simultaneously. In most patients, myelophthisic anemia developed at varying intervals up to 3 years after the initial demonstration of osseous metastases.

Among the most important physical findings in these cases, were splenomegaly and hepatomegaly. The spleen was palpable in 6 of the 18 cases. The liver was enlarged to physical examination in 12 of the 18 cases. Hepatomegaly and splenomegaly in myelophthisic anemia have been attributed to extramedullary hematopoiesis, presumably representing a compensatory mechanism for the decreased blood formation due to marrow invasion.

Eight patients came to autopsy. In 6 of these, the liver was enlarged. In all cases, the liver enlargement was demonstrated at autopsy to be due to extensive metastases. Five of the patients had enlarged spleens at autopsy. In 2 cases, the enlargement could readily be ascribed to myeloid metaplasia. In the other 3, the enlargement seemed due primarily to metastases.

Development of myelophthisic anemia usually occurs late in the course of the disease, and indicates a poor prognosis. Of 13 patients who died, the average life duration after myelophthisic anemia developed was 72 days, with a range of 12 to 270 days.

Abnormal bleeding, secondary to thrombocytopenia, was encountered in 14 of 18 patients, ranging in degree from a few petechiae to massive exsanguinating hemorrhages from the gastrointestinal tract. Surgical ablative procedures, such as castration or adrenalectomy, are frequently effective in temporarily arresting the growth of cancer of the breast. In those patients with myelophthisic anemia, the potential benefit from surgery

must be weighed against the risk of hemorrhage. Because of the serious nature of the primary disease, the writers were inclined to accept the risk of hemorrhage and to submit their cases to surgery in spite of thrombocytopenia, providing the bleeding and clotting times were normal or near normal. In this series, bleeding from the surgical wound occurred in only one of 10 patients. In this case, the wound was reopened and the bleeding stopped by ligation and packing with gelfoam. The patient's postoperative recovery was uneventful thereafter. One other patient died of massive hemorrhage from multiple sites in the gastrointestinal tract 24 hours after hypophysectomy. However, there was no abnormal bleeding from the surgical wound at autopsy.

Remissions, of sufficient magnitude to justify the risk of hemorrhage at surgery, were observed. (West, C. D., Ley, A. B., and Pearson, O. H., Myelophthisic Anemia in Cancer of the Breast: Am. J. Med., XVIII, 923-931, June 1955)

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Diagnosis of Orthopedic Lesions by Aspiration Biopsy

The diagnosis of orthopedic osteo-articular lesions is based upon three principal factors: clinical examination; roentgenographic examination; and laboratory examination (pathological, bacteriological, chemical, and histochemical).

In order to ascertain the nature of an osteo-articular lesion in which diagnosis is doubtful clinically and roentgenographically, it is necessary to examine the lesion directly and, for this reason, the writers favor biopsy, whether open or by aspiration. Biopsies and the results of experience with 1061 aspirations are discussed.

Aspiration biopsy is indicated in all cases of questionable diagnosis; it is unnecessary when diagnosis can be made by clinical and roentgenographic examination.

Aspiration biopsy should be carried out before any treatment, particularly roentgen therapy, is begun, because the application of roentgen rays may alter the histological structure and make it difficult to classify lesions which might easily have been diagnosed before treatment.

Because the authors practiced a greater number of aspirations and obtained the cooperation of skilled pathologists, they have achieved more precise diagnoses and clearer classification, particularly in malignant tumors. They set great store by differentiating between primary and metastatic tumors, and for this reason, were not satisfied to establish a diagnosis of malignant tumor only; they insisted that the pathologist should establish, wherever possible, a precise diagnosis to enable them to apply the most favorable treatment for each case.

The aspirated material enables the pathologist not only to follow the usual technical procedures but also to employ special methods of staining, such as silver impregnation for reticulin fibers, which is of importance in the diagnosis of reticulum-cell sarcoma. In spite of the small amount of material obtained, the pathologist can carry out histochemical studies. He may, for instance, make glycogen and alkaline phsophatase determinations; the former may be altered in Ewing's sarcoma, the latter in Paget's disease.

When the presence of inflammatory disease is suspected, it is most important that a part of the material collected should be set apart for bacteriological examination. This is true, especially of tuberculous lesions in which the pathological changes may be doubtful, while guinea-pig inoculation gives a positive diagnosis.

Of 1061 aspirations carried out upon 998 patients, the results were classified as positive, doubtful, and negative. A result is considered positive when the diagnosis can be established; doubtful when the diagnosis cannot be confirmed and must be verified by some other means; negative when the diagnosis cannot be made.

Results obtained in 1061 punctures were: positive, 895 (84.35%); doubtful, 45 (4.25%); and negative, 121 (11.40%).

In 49 cases, repeat punctures were performed (1) because insufficient material was obtained from the first puncture; (2) to confirm a diagnosis; and (3) because the lesions had several foci and punctures were made in several bones. Of these 49 aspirations, 24 were positive, 7 were doubtful, and 18 were negative.

In 7 other cases, 3 punctures each were made, of which 12 were negative, 4 doubtful, and 5 positive.

Punctures were made in nearly all of the bones of the skeleton with the exception of those at the base of the skull and the vertebrae between the first and tenth thoracic.

In the 895 punctures in which the results were positive, diagnosis was confirmed in 871 by open biopsy, by surgical exposure of the lesion, or by the clinical course. It should be remembered that, in 24 of these cases, there were repeat punctures with positive results.

The greatest number of diagnoses in the series were for malignant tumors. (Ottolenghi, C. E., Diagnosis of Orthopedic Lesions by Aspiration Biopsy: J. Bone & Joint Surg., 37-A, 443-463, June 1955)

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The printing of this publication has been approved by the Director of the Bureau of the Budget, 16 May 1955.

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Dysphagia Lusoria

Dysphagia lusoria is the term which for many years has been applied to symptomatic esophageal compression by an arteria lusoria. An arteria lusoria is an anomalous form of the right subclavian artery. It arises as the fourth branch of an otherwise normal aortic arch, and passes around the left and posterior aspects of trachea and esophagus before coming to lie in the proper position to serve as the subclavian artery. This appears to be the most common anomaly of the aortic arch system, its incidence having been recorded upon anatomic study as 0.6%, 0.8%, 1%, and 1.8%. One radiologic study of 8500 subjects showed an incidence of 0.15%. There is frequent association with other aortic arch and heart anomalies, particularly the tetralogy of Fallot, coarctation, and patent ductus arteriosus. Surgical correction of some major heart defects may be made more difficult by the presence of an arteria lusoria. An arteria lusoria may accompany anomalies of the esophagus itself.

The purpose of this report is a discussion of clinical experiences with dysphagia lusoria as encountered in personally observed patients whose symptoms began during adult life.

Each of the 11 patients sought help primarily because of dysphagia. Three patients stated that the onset had seemed rather sudden, while the others were not able to state exactly when they had first noticed swallowing difficulty. Three patients had been in the third decade of life when the first trouble was experienced, two in the fourth decade, three in the fifth, and one each in the sixth, seventh, and eighth decades. One patient had had unexplained spells of choking and syncope when a small child.

These patients appeared to be miserable with their common problem of swallowing difficulty. None was very sick objectively, but his day-to-day symptoms, an unexplained source of fear, had led to disabling worry and depression. Seven patients had been symptomatic more than a year at the time the diagnosis was established, and one had had symptoms for 10 years. The three points which were regularly reiterated during the interviews were disability, fear, and fatigue.

The dysphagia, as described by all of the patients, was the simple sensation of temporary arrest of solid boli beneath the manubrium. There was difficulty with liquids if they were taken rapidly. There was no pain other than the discomfort of substernal fullness which regularly accompanies obstructed swallowing. The dysphagia was a constant, daily problem.

Physical examination gave no findings which could be ascribed to the anomaly or its effects. In particular, the findings which have been described in this disease were absent; murmur of arterial compression, inequality of upper extremity pulses, evidence of thoracic duct obstruction, and trophic changes in the right arm. The swallowing time was of interest because it was normal in 8 patients.

The diagnoses were established by the characteristic esophageal defect as demonstrated roentgenologically. Esophagoscopic examination proved important in excluding the main radiologic differential problem--benign extramucosal esophageal tumor--and in searching for other esophageal disease which may cause dysphagia, particularly esophagitis and hiatus hernia. None of these was found among the 10 patients who were studied esophagoscopically. The imprint of the arteria lusoria could not be recognized endoscopically in 2 cases. In 6, the indentation involved mostly the left segment of the esophageal circumference, while in 2, the posterior aspect showed the most deformity. It was apparent to the endoscopist that the extrinsic mass was pulsatile in 4 patients, but in the other 4, the rhythmic motion of the mass could not be differentiated from transmitted cardiac pulsations.

Although dysphagia lusoria is a clear-cut mechanical problem, which is cured with assurance by resection of the physiologically expendable arterial segment, operative treatment was decided against in all cases. When the very slowly progressive nature of the course of the disease and the absence of complications were balanced against the seriousness of the operation, it was concluded that surgical treatment should be withheld, pending nonoperative therapeutic efforts. This meant that it was not possible to offer the patients prompt concrete therapy. However, there was much to contribute in terms of explanation about the cause of symptoms, the nature of the abnormality, and the benignancy of the future course. Detailed explanation of the x-ray films to the patient proved to be an effective therapeutic gesture. (Palmer, E. D., LTCOL MC USA, Dysphagia Lusoria: Clinical Aspects in the Adult: Ann. Int. Med., 42: 1173-1179, June 1955)

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Catalog of Translated Material in Space Perception

The U. S Naval School of Aviation Medicine, Pensacola, Fla., has just announced the publication of a catalog of 427 translated foreign articles on various phases of space perception edited by Dr. Cecil Mann of Tulane University. In order to make them more accessible to researchers in factors influencing the equilibrium and orientation of pilots, these translations were prepared under a contract between the Office of Naval Research and Tulane University. Considerable interest has been shown in them by scientific workers and by the Library of Congress which has undertaken the task of microfilming them for its collection. These articles either have not been available previously in translation or have not been readily accessible, but may now be obtained from the School of Aviation Medicine.

It is worth noting that the School also maintains a bibliography of several thousand additional articles and books in this area, the majority being available as photostats and reprints.

This catalog is arranged in author-alphabetical form, and the bibliographical format is that adopted by the American Psychological Association. (Project No. NM 001 063. 01. 37. New No. NM 001 110 500. 37, 15 May 1955)

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Why the Ensign 1995 (Medical) USNR Program?

At the present time, the only student program sponsored by the Navy Department for medical students is the Ensign 1995 (medical) Program. Eligible candidates for this program are limited to those students enrolled, or who have been accepted for enrollment, at medical schools in the United States and Canada which are accredited by the Council on Medical Education and Hospitals of the American Medical Association. While this program does not provide direct financial aid for medical students, it does offer a number of positive benefits and privileges, particularly to those medical students having an obligation for military service under existing Selective Service laws. Some benefits and privileges are:

1 Successful candidates are appointed Ensign 1995 (medical) USNR for inactive duty while pursuing their professional studies.

2 They are legally deferred from military service so long as they remain in good standing in medical school, or until graduation and completion of no more than twelve months internship.

3 They accumulate longevity for pay purposes and under present pay scales. Their monthly basic pay when reporting for first active duty in the grade of Lieutenant (junior grade), assuming that they held an Ensign 1995 (medical) commission during their four years of medical school, amounts to nearly $80 more than that of a medical officer of equal rank entering on first active duty from a civilian status. This provision also applies to those entering on first active duty as a Naval Intern.

4 All other factors being equal, they are given preferential consideration by a board convened in this bureau for the purpose of selecting applicants for the Naval Intern Program.

5 The period of service required by Selective Service laws, if any, will be performed by these officers as physicians in the Navy, which is presumed to be the service of their choice.

6 They will perform their period of obligated service, if any, immediately upon completion of internship instead of being inducted by the Selective Service System at a later date with consequent interruption of private practice or residency training.

7 They may associate with drilling units of the Naval Reserve, often in a pay status, accruing promotion and retirement point credits while gaining valuable and worthwhile experience before entering on extended active duty.

8 They may, each year, avail themselves of fourteen days active duty for on-the-job training at any suitable training medical facility, including medical research laboratories and aviation research laboratories located throughout the Eastern seaboard of the United States.

9 After completion of at least the second year of medical school and not having graduated, Ensigns 1995 (medical) are eligible for up to sixty days active duty for training with full pay and allowances at any teaching naval hospital as may be designated by the Chief, Bureau of Medicine and Surgery. This training is known as the Clinical Clerkship Program and is designed to provide indoctrination and orientation into naval medicine, rotation through the major professional services of a naval teaching hospital and performance of on-the-job training duties. Commencing 1 July of each year, this training is available to the medical student during his vacation from medical school. Each officer is eligible for only one tour of this duty during his tenure as an Ensign 1995 (medical).

All applications from civilian individuals are processed through the U. S. Navy Offices of Naval Officer Procurement, located in the following principal cities: Boston, Mass. ; Albany, Buffalo and New York, N. Y. ; Cincinnati, O. ; Philadelphia and Pittsburgh, Pa. ; Macon, Ga. ; Raleigh, N. C. ; Nashville, Tenn. ; New Orleans, La. ; Albuquerque, N. M. ; Dallas and Houston, Tex. ; Denver, Colo. ; Chicago, Ill. ; Detroit, Mich. ; Minneapolis, Minn. ; Kansas City and St. Louis, Mo. ; Omaha, Neb. ; Los Angeles, and San Francisco, Calif. ; Salt Lake City, Utah; Butte, Mont. ; Seattle, Wash. ;

and Washington, D. C. Upon inquiry, either in person or by mail, the officer in charge will provide information, application forms, and will assist in every practicable way.

The Chief of Naval Personnel has established a policy whereby Naval Reserve personnel, whose status as a Reservist is incompatible with their attendance at accredited schools of medicine, must apply for appointment in the appropriate staff corps or be discharged from the Naval Reserve at the time of graduation.

As provided in BuPers Instruction 1120.1B, Reserve Officer personnel, if so assigned, will submit via the Commandant and Commanding Officer of their Reserve Unit a resignation of present commission and request appointment as Ensign 1995 (medical) USNR. Reserve enlisted personnel will make application at the nearest Office of Naval Officer Procurement for processing in accordance with current Recruiting Service Instructions and the foregoing BuPers Instruction.

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A Letter of Appreciation

The following letter was received from the State Department of Health of New Hampshire:

> "I would like to express my appreciation for the wonderful cooperation and voluntary service rendered by nurses and corpsmen of the Portsmouth Naval Hospital at three of our Polio Vaccination Clinics held in eastern Rockingham County this past week.
>
> Their excellent training, knowledge of clinic procedures, ideal technique, and their genuine interest in the children, made it possible for our clinics to function efficiently and pleasantly.
>
> It has been an extreme pleasure to work with this group. All this work on their part was entirely voluntary . . . . . "

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Change of Address

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

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From the Note Book

1 Rear Admiral B. W. Hogan, MC USN, Surgeon General of the Navy, received the Honorary Degree of Doctor of Science from Boston College and Tufts University recently. (TIO, BuMed)

2 Dr. Howard T. Karsner, Research Advisor to the Surgeon General of the Navy, was recently honored by being named among the University of Pennsylvania's "Prominent Pennsylvanians."

Dr. Karsner, a 1903 alumnus of the University's School of Medicine, is an internationally known medical scientist. Author of the widely used textbook, "Human Pathology," he served as chief demonstrator in pathology at the University of Pennsylvania's Medical School from 1908 - 1911, then as Assistant Professor of Pathology at Harvard Medical School for four years. (TIO, BuMed)

3 August 1955 is the closing date for entries in this year's U.S. Naval Institute Enlisted Prize Essay Contest, open to any enlisted man or woman of the Navy, Marine Corps, or Coast Guard on active duty. Last year's winning essay, "What! Me Ship Over," by Chief Quartermaster W. J. Miller, USN, was the most generally reprinted article to be published by the Naval Institute in 1954. Forty thousand copies of the article were made available for distribution to the Fleet by the Chief of Naval Personnel. (U.S. Naval Institute Proceedings, July 1955)

4 Public Law 568 of the 83rd Congress transferred the Indian health and hospital program from the Department of the Interior to the Public Health Service, effective 1 July 1955. The program affects about 350,000 Indians living on reservations.

A Division of Indian Health, located in the Service's Bureau of Medical Services, has been created to administer the program. Dr. James R. Shaw, a Public Health Service officer, who has headed the Indian health program for the past two years in the Bureau of Indian Affairs, will continue in this capacity as Chief of the new Division. Dr. Frank French and Dr. Joseph Dean will continue to serve as assistant chiefs. About 3600 employees, most of whom are located in hospitals and area offices in the western part of the country, have also been transferred with the program. (P. H. S., D. H. E. W.)

5 During a 4-month period, 348,875 U.S. Navy and Marine Corps personnel on active duty and retired status were examined by photofluorographic films. Of these, 8851 were re-examined using 14 x 17 roentgenograms because of suspicious findings. Of these, 773 were referred for further study. Ultimately, 289 were proved to have significant chest

conditions. (Armed Forces Medical Journal, July 1955; LT J. L. Bircher, MC USNR, CDR C. A. Castle, MC USN)

6 The surgical treatment of hydrocephalus has offered many procedures with varied results. The authors report their experiences with ventricular or lumbar subarachnoid peritoneal shunts in 62 patients studied for over 4 years at the University of Texas. (J. Neurosurg., May 1955; I. J. Jackson, M. D., S. R. Snodgrass, M. D.)

7 The physiologic use of gravity, compression, massage, and dehydration is of great value in reducing the edema of arms due to surgical interference with lymphatics and the edema of legs afflicted with lymphedema praecox, and in maintaininngsuch improvement during years of supervision. (Surg. Obst. & Gynec., July 1955; W. T. Foley, M. D.)

8 A study of the time and occurrence of pregnancy during the lactating period in 500 lactating mothers has been made to determine to what extent breast feeding protects the mother as a natural means in the spacing of children, to regain her health and strength, before assuming another pregnancy. (Am. J. Obst. & Gynec., July 1955; R. Gioiosa, R. N.)

9 The residual mortality from appendicitis is determined by the incidence of perforation. Unperforated appendicitis carries virtually no mortality. The removal of a significant percentage of normal appendeces is entirely justified in the effort to eliminate perforation so long as the highest standards of diagnostic endeavor are maintained. (Ann. Surg., June 1955; J. R. Cantrell, M. D., E. S. Stafford, M. D.)

10 A brief review of the clinical features, laboratory findings, pathogenesis, diagnosis, and treatment of cystinosis is presented in J. Pediat., July 1955; S. Israels, M. D., H. J. Suderman, M. Sc.

11 A review of bone marrow findings in disorders of the hemopoietic system appears in Am. J. Clin. Path., June 1955; G. L. Pease, M. D.

12 If cancer of the uterus or ovary is to be detected in the early stage, and if the patient is to be given the best chance for a cure, all women between 35 and 60 years of age should have a gynecologic examination at least once a year. (Postgrad. Med., June 1955; H. F. Traut, M. D.)

13 The author discusses injuries of the bladder and ureter resulting from surgical procedures. Seven pelvic or abdominal operations, complicated by ureteral injury, necessitated 15 additional operations, 22 cystoscopies, caused the loss of 5 kidneys and one life. Five pelvic

operations, complicated by vesico vaginal fistula, required 5 additional operations and 31 cystoscopies. (J. Urol., June 1955; Wm. N. Wishard, Jr., M. D.)

14 Ligation of the inferior vena cava is considered a satisfactory palliative treatment of intractable cardiac insufficiency, particularly when accompanied by the threat of pulmonary emboli. The functional improvement achieved and the prolongation of life obtained justify the operative and postoperative risks to the patients. (Am. Heart J., July 1955; J. Bernath, M. D., R. Guillemot, M. D., P. Samuel, M. D., R. H. DeBalsac, M. D., Paris)

15 An excellent article discussing hemoglobinuria appears in Am. J. Med., June 1955; T. H. Ham, M. D.

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Fleet, Force, Type, and Staff Medical Officers, District Medical Officers, Division Surgeons, Marine Divisions

District Medical Officers

First Naval District	CAPT J. R. Phillips (MC) USN
Third Naval District	RADM F. R. Moore (MC) USN
Fourth Naval District	RADM J. R. Fulton (MC) USN
Fifth Naval District	RADM O. B. Morrison (MC) USN
Sixth Naval District	RADM C. F. Behrens (MC) USN
Eighth Naval District	CAPT W. R. Whiteford (MC) USN
Ninth Naval District	RADM W. F. James (MC) USN
Tenth Naval District	CAPT H. H. Carroll (MC) USN
Eleventh Naval District	RADM R. M. Gillett (MC)USN
Twelfth Naval District	RADM F. C. Greaves (MC) USN
Thirteenth Naval District	CAPT A. T. Walker (MC) USN
Fourteenth Naval District	CAPT W. P. Stephens (MC) USN
Fifteenth Naval District	CAPT C. E. Bentel (MC) USN
Seventeenth Naval District	CAPT P (n) Vaughn (MC) USN

Staff Medical Officers

CINCPAC/CINCPACFLT	CAPT D. E. Dement (MC) USN
CINCLANT/CINCLANTFLT	CAPT H. J. Van Peenen (MC) USN
CINCNELM	CAPT H. W. Rose (MC) USN
COMNAVFE	CAPT C. W. Stelle (MC) USN

COMNAVPHIL	CDR T. E. Hoffman (MC)USN
COMSERVPAC	CAPT B. G. Feen (MC) USN
COMCRUDESPAC	CAPT E. H. Osterloh (MC) USN
COMAIRPAC	CAPT L. E. Mc Donald (MC) USN
COMSUBPAC	CAPT W. (n) Welham (MC) USN
CG FMF PAC	CAPT W. N. New (MC) USN
COMSERVLANT	CAPT J. W. Denneen (MC) USN
COMAIRLANT	CAPT J. T. Smith (MC) USN
COMSUBLANT	CDR H. J. Alvis (MC) USN
CG FMF LANT	CAPT T. M. Arrasmith, Jr. (MC)USN
COMSTS	CAPT J. W. Kimbrough (MC) USNR
COMWESTSEAFRONTIER	RADM F. C. Greaves (MC) USN
CNATRA	CAPT J. L. Holland (MC) USN
CNABASICTRA	CAPT H. E. List (MC) USN
CNARESTRA	CAPT R. F. Carmody (MC) USN
CNAATC	CAPT J. E. Fulghum (MC) USN
SACEUR	CDR E. C. Stone Jr. (MC) USN
SACLANT	CAPT H. J. Van Peenen (MC) USN

Division Surgeons, FMF

1st Marine Division	CAPT E. B. Keck (MC) USN
2nd Marine Division	CAPT G. G. Ekblad (MC) USN
3rd Marine Division	CAPT G. M. Lynch (MC) USN

Fld Med Serv Schl, Mar Corps Base, Camp Lejeune, N. D.	CO	CAPT R. R. Callaway (MC) USN
	XO	CDR W. H. Wilford(MSC) USN
Fld Med Serv Schl, Mar Corps Base, Camp Pendleton, Calif.	CO	LCDR F. M. Morgan (MC) USN
	XO	LCDR L. M. May (MSC) USN

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Board Certifications - Inactive Duty Officers

American Board of Anesthesiology

LT Charles E. Gray (MC) USNR
LTJG A. T. Nelson (MC) USNR

American Board of Internal Medicine

LT James F. Blute, Jr. (MC) USNR
LCDR Leo R. Milner (MC) USNR

American Board of Obstetrics and Gynecology

LTJG Joseph P. Griffon (MC) USNR

American Board of Ophthalmology
LT William F. Anderson (MC) USNR
LTJG Charles D. J. Regan (MC) USNR
LT Orson W. White (MC) USNR

American Board of Orthopedic Surgery
LTJG Raymond J. Adams (MC) USNR
LTJG Charles A. Rowe (MC) USNR

American Board of Pediatrics
LTJG John H Kennell (MC) USNR
LT Louis F. Kuehn (MC) USNR

American Board of Psychiatry & Neurology in Psychiatry
CAPT Oliver B. Jensen (MC) USNR

American Board of Radiology
LTJG Fred J. Hodges III (MC) USNR

American Board of Surgery
LCDR Julian H. Conn (MC) USNR
LT Charles F. Morrell, Jr. (MC) USNR
LT William M. Watson (MC) USNR

American Board of Urology
CDR Lorande M. Woodruff (MC) USNR

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BUMED NOTICE 6320 10 June 1955

From: Chief, Bureau of Medicine and Surgery
To: All Stations Having Medical/Dental Personnel Regularly Assigned

Subj: Ch-1 to BuMedInst 6320.4B, Subj: Hospitalization and subsistence rates for fiscal year 1955

The purpose of this Notice is to promulgate Change 1 to BuMedInst 6320.4B.

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BUMED INSTRUCTION 6530.5 17 June 1955

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical Corps Personnel Regularly Assigned

Subj: NIH minimum requirements for citrated whole blood (human)

Ref: (a) BuMedInst 6530.1

Encl: (1) Fourth Revision of the NIH Minimum Requirements for Citrated Whole Blood (human)

This Instruction informs all activities collecting blood for transfusion purposes of the latest minimum requirements for collection and storage of human blood, as set forth in enclosure (1) hereto.

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BUMED INSTRUCTION 6710.15 20 June 1955

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Defective medical and dental material; authority for disposition of

Ref: (a) Medical and Dental Materiel Bulletin, Edition No. 54 dtd 1 May 1955
(b) Art. 25-21, ManMed Dept

This Instruction provides authority for the disposal of defective material listed in paragraph IV of reference (a).

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BUMED NOTICE 6820 21 June 1955

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical/Dental Personnel Regularly Assigned

Subj: CH-1 to BuMed Instruction 6820.4B (Medical and dental professional and technical books; procurement of)

This Notice amends subject Instruction.

BUMED NOTICE 7303 22 June 1955

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: CH-1 to BuMed Instruction 7303.4A, Subj: Funds under the appropriation Medical Care, Navy, for ships and fleet operating units

Encl: (1) Listing of Quarterly Target Amounts by Vessel and Unit Type, Fiscal Year 1956
(2) Accounting Data Applicable to Fiscal Year 1956

The purpose of this Notice is to provide addressees with subject change and to provide further clarification of instructions relative to authority to exceed quarterly target amounts.

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BUMED NOTICE 6320 23 June 1955

From: Chief, Bureau of Medicine and Surgery
To: U.S. Naval Dispensaries
All Continental Stations having Station Hospitals, Infirmaries, and Dispensaries

Subj: CH-2 to BuMedInst 6320.16, Subj: Staffing Report, NavMed-1357 (Report Symbol MED 6320-7)

Encl: (1) Subject change

This Notice desires additional information on specific types of civilian personnel by providing replacement pages 3, 4, and 4a.

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BUMED NOTICE 6320 27 June 1955

From: Chief, Bureau of Medicine and Surgery
To: All Naval Dispensaries
All Continental Stations Having Infirmaries and Dispensaries

Subj: Completion of Part II of the Staffing Report (NavMed-1357) for the month of July 1955

This Notice brings to the attention of addressees the provisions set forth in subparagraph 5b of BuMedInst 6320.16, which requires completion of Part II of the Staffing Report (NavMed-1357) for the month of July 1955.

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BUMED INSTRUCTION 7301.3A 29 June 1955

From: Chief, Bureau of Medicine and Surgery
To: All Stations

Subj: Temporary duty travel costs of Army and Air Force military patients in naval facilities

This Instruction provides accounting classification data to be cited when transferring Army and Air Force military patients during fiscal year 1956.

BuMed Instructions 7301.3 (previously 7302.1B) and 7301.4 (previously 7302.2A) are canceled 1 July 1955.

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BUMED INSTRUCTION 7303.3B 29 June 1955

From: Chief, Bureau of Medicine and Surgery
To: Distribution List

Subj: Medical Department funds for naval attaches, naval liaison officers and diplomatic missions for fiscal year 1956

Ref: (a) NavCompt Manual, 023304
(b) NavCompt Manual, 024404
(c) NavCompt Manual, 026100 to 026115
(d) Chapter 20, ManMed Dept

This Instruction provides instructions to naval attaches, naval liaison officers and diplomatic missions on the utilization of funds under the appropriation Medical Care, Navy during fiscal year 1956. BuMed Instruction 7303.3A is canceled.

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BUMED INSTRUCTION 7030.2 1 July 1955

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical Personnel Regularly Assigned

Subj: Fees for copying, certification, and search of records

Ref: (a) NavComptInst 7030.6, same subject

The purpose of this Instruction is to disseminate information concerning subject program applicable to medical records.

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Preventive Medicine Briefing

Poliomyelitis Vaccine. Issuance of further instructions regarding use of poliomyelitis vaccine in dependents of military personnel has been delayed because of the unsettled status of vaccine production and release. It now seems probable that little, if any, vaccine, other than that which may be distributed by the National Foundation for Infantile Paralysis, will reach the field before late fall or winter.

Danger of Contamination from Garbage Grinders. Recent studies aboard ships by Preventive Medicine Units Numbers 2 and 6 have shown that garbage grinders using salt water above the grinder are capable of causing

widespread contamination of food service areas by aerosol formation. BuShips Instruction 9360.11 of 2 June 1955 has been promulgated to correct this problem. Medical Department personnel aboard ships having garbage grinders not meeting the requirements of this instruction should advise against the grinders being operated in potentially polluted waters such as harbors or restricted anchorages.

Non-gonococcic Urethritis. Reports from ships indicate this syndrome continues to be a major problem. There is urgent need for well designed and controlled studies on the etiology, epidemiology, and therapy of this disorder. Preventive Medicine units can provide epidemiological and laboratory assistance but apparently have not been utilized by commands having major problems in this field.

Milk. BuMed Instruction 6240.2 of 23 May 1955 promulgated the sanitary requirements for use of milk and milk products in the Navy. These requirements are designed to provide the safe dispensing of the maximum amount of milk to personnel that is compatible with existing ration allowances. The medical department must accept a large responsibility for supervision of practices used in the handling and dispensing of milk, particularly in relation to bulk milk, and should familiarize themselves with this instruction. Food-service personnel should be given special indoctrination at all activities using bulk milk.

Recommendations of the Armed Forces Epidemiological Board concerning Smallpox Vaccinations. The Armed Forces Epidemiological Board of the Department of Defense at its spring meeting considered the following two recommendations of its Commission on Immunization. Both recommendations were unanimously approved by the Board.

> "That the multiple pressure method of vaccination is recommended for use in the Armed Forces. It was recognized that other techniques and sites other than the deltoid area have been advised at times, but it was felt that further study was necessary before any deviations from the multiple pressure method currently in use could be recommended."

> "That pregnancy of any stage was not a bar to smallpox vaccination, since follow-up studies of large scale vaccinations have revealed no increase in fetal deaths or abnormalities. Accordingly, routine vaccination of pregnant women should be carried out as indicated without regard to the state of pregnancy."

Thermal Stress Control. Lieutenant Commander David Minard MC USN, Naval Medical Research Institute, Bethesda, Md., has been assigned additional duty with the Bureau of Medicine and Surgery, Preventive Medicine Division, Industrial Health Branch, to perform duties relating to "Thermal Stress Control" with special reference to tropical and arctic regions.

Revision of Civilian Personnel Instruction 88. A revision of Navy Civilian Personnel Instruction 88 (medical department duties and responsibilities) has been forwarded to the Office of Industrial Relations for review and publication.

Hearing Conservation Program. A directive initiating a Navy-wide hearing conservation program is now being cleared through the various bureaus. The program defines noise-hazardous areas. It also gives the hearing loss level at which removal of personnel is indicated.

Civilian Doctors in Navy Industrial Activities. As of 25 April 1955, the number of civilian physicians in Navy industrial type activities was as follows: Bureau of Supplies and Accounts, 4; Bureau of Ordnance, 8; Bureau of Ships, 33; Bureau of Aeronautics, 3; and Naval Station, Norfolk, Va., 1 - total, 49.

Remuneration of Civil Service Physicians in Naval Activities. The Bureau of Medicine and Surgery is working with the Office of Industrial Relations in a joint effort to increase the remuneration of Civil Service physicians serving in naval activities.

Uniform Labels for Hazardous Chemicals. A uniform labeling program is in the process of being prepared. This program will establish specific labeling requirements for 6 categories of hazardous chemicals, i.e., toxic, toxic and flammable, flammable, poison, corrosive, and radiation.

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Heat Stress: A Navy Medical Problem

(The clinical aspects of heat illness were discussed in the Preventive Medicine Section of the 8 July issue of the Medical News Letter. The discourse is continued in this issue with consideration of the epidemiology and the prevention of heat diseases.)

2 Epidemiology of Heat Illness

Modern medicine employs the epidemiologic methods in analyzing causes and devising preventive measures in coping with mass diseases. It recognizes the validity of the concept of multiple causation of disease with factors relating to the host, the agent, and the environment all playing important, though not necessarily equally dominant, roles. This approach has been eminently successful in controlling diseases transmitted by infectious agents and is proving increasingly useful in controlling noninfectious diseases including metabolic disorders and accidental trauma. The etiology of heat illness will be considered in this light.

a Host Factors. In military populations, unacclimatized, untrained recruits constitute the population exposed to greatest risk of heat disease. In 1952, nearly two-thirds of the 600 cases of heat exhaustion occurring in the Navy and Marine Corps were in Marine Corps recruits undergoing summer boot training at Parris Island, S. C. Smaller numbers occurred in advanced trainees at Camp Lejeune, N. C., and Quantico, Va. Relatively few cases were reported in personnel aboard ship or overseas.

Among training populations, certain segments show greater heat susceptibility than the group as a whole. Host factors determining these differences in heat tolerance are the following:

Acclimatization. In the summer of 1954 at Camp Lejeune, the incidence of heat exhaustion among recruits from northern states was three times greater than in trainees from the southern states. Basic to this difference in heat tolerance, is the degree of physiological acclimatization to heat and the know-how of living in hot climates which the trainee brings with him to camp.

Water and Salt Deficiency. Dehydration alone or in conjunction with salt deficiency readily occurs in unacclimatized recruits in whom both water and salt losses by sweating are high. Even the most zealous training officer should now recognize that men cannot be trained to go without water. The physiologic process of acclimatization actually results in increased rates of sweating during work in the heat. Hence, water balance demands more, rather than less, water intake as training in the heat proceeds.

Obesity. Past reports have shown that the overweight recruit is more susceptible to heat stroke than one of average weight. Of four cases of heat stroke occurring at Parris Island in the summer of 1954, three were obese. Insulating properties of subcutaneous fat and the lower surface area to volume ratio make the obese subject prone to exhibit positive heat balance and excessive heat strain.

Past History of Heat Illness. Twenty-one percent of the cases treated for heat exhaustion at Camp Lejeune in 1954 gave a past history of heat illness. Only 8% of a control group gave a similar history.

Additional host factors which deserve mention are intercurrent disease including febrile reactions to inoculations, lack of adequate sleep, excessive or poorly ventilated clothing, and pre-existing skin trauma--a factor interfering with normal sweat secretion.

b Agent Factors. All physical factors in the environment which contribute to heat stress may be collectively regarded as the agent of heat illness. These four factors are air temperature, humidity, air movement, and radiation. Natural climates exerting heat stress are the tropical, or hot-moist climate (high wet-bulb temperature) and the desert, or hot-dry climate (high dry-bulb temperature; low humidity). In hot moist climates, heat strain is severe because sweat evaporation is inefficient and excessive amounts of sweat are secreted to maintain heat balance. In desert climates, sweat evaporates efficiently, but the high environmental heat loads impose a severe burden on the capacity to sweat. In both tropic and desert climates, direct and reflected solar radiation is a factor of paramount importance since it can heat the body to an extent equal to twice or three times the resting metabolic heat production. High air temperature with or without high humidity and radiation can also occur in artificial environments such as engine rooms of ships, living and working spaces of ships in tropical waters, and in barracks during hot weather.

c Environmental Factors. The environment of the recruit trainee is the boot camp. The training program requires frequent bouts of sustained or intermittent muscular exertion sometimes resulting in high metabolic heat production. Heat exhaustion under such conditions may occur even when environmental heat stress is slight. Sustained internal heat production of moderate degree, like that during day marches, in the presence of high environmental heat often leads to serious outbreaks of heat illness. Activities such as day marching can be conducted at night with impunity.

During the day, air temperature rises as one nears the ground. Moreover, prone positions expose a greater body area to the sun. Hence, activities requiring horizontal positions on the ground, such as those on the rifle range and the infiltration course, expose the subject to higher environmental heat than exercises conducted with the body erect. A significant proportion of heat exhaustion cases at Camp Lejeune in 1954, occurred in men sitting in outdoor classes exposed to the sun. Metabolic heat production was minimal, but high air temperatures coupled with direct solar radiation imposed a heat burden intolerable to susceptible subjects.

Meal schedules are important. Postprandial exercise in the heat leads to competitive demands on the circulation by the digestive tract and the skin. Heat imbalance, digestive disturbances, and circulatory strain are the result. If possible, meals should be followed by rest periods with the large meal scheduled for evening.

Hot, poorly ventilated sleeping quarters interfere with restful sleep. Cumulative effects of fatigue, together with a high incidence of heat rash, establish fertile soil for more serious heat diseases.

3 Prevention

Although underscoring the heat problem as it occurs in recruit populations, the epidemiologic approach employed above can be equally well applied to other naval populations and environments, including engine room watches, personnel on ships in tropical waters, and passengers on troop transports. The reader may feel that the manner of grouping various factors is arbitrary. Perhaps so, but the manner is not important as long as a well defined and systematic method is adopted in analyzing and evaluating the heat problem. Prevention then becomes a matter of controlling or correcting the causative factor, or, more usually the multiple factors, whether these be predominantly related to the host, the agent, or the environment. Although preventive measures are suggested in the discussion of causation, some points require special emphsis:

a Heat acclimatization can only be acquired by work in hot conditions over a period of time. Rapid acclimatization in raw recruits is impossible except at the cost of many heat casualties. A "breaking-in" period of one to two weeks with progressive degrees of heat exposure and physical exertion will minimize the number of heat cases.

b Indoctrination of training officers in recognizing the need for liberal allowance of water and adequate salt will help abolish the false notion that men can be trained to resist dehydration. "Water discipline" must be replaced as a doctrine by "water freedom" in which drinking moderate amounts of water at frequent intervals is encouraged.

c Salt may be added to the food, to the drinking water, or ingested as cellulose-impregnated salt tablets.

d A program of special training schedules for obese trainees, and possibly other groups suspected of heat susceptibility, may have merit. Training officers and noncommissioned officers should be taught to recognize signs and symptoms of excessive heat strain and incipient signs of heatstroke and heat exhaustion.

e Clothing should be worn loosely at the neck, and at the cuffs of the sleeves and trousers to facilitate convective cooling. Fatigue clothing of twill cloth interferes with evaporative cooling. Poplin cloth is superior in this respect. Helmet liners provide better cooling and protection of the head than caps.

f Training exercises requiring sustained or severe physical effort, as well as those conducted in the prone position, should be scheduled, when possible, at night or in early morning. Outdoor classes should be conducted only in the shade with adequate exposure to the wind.

g Finally, much can be accomplished in prevention of heat illness by curtailing or suspending outdoor exercises when environmental heat stress exceeds specified levels.

By adopting a program embodying the principles of liberal water and salt allowances, rational clothing practices, and the regulation of training activities in accordance with prevailing air temperature and humidity, the Marine Corps Recruit Depot, Parris Island, S.C., has succeeded in reducing the weekly incidence of heat cases during the three summer months from 53 per 10,000 trainees in 1952 to 6.5 per 10,000 in 1954.

Heat studies, conducted by the Bureau of Medicine and Surgery in 1954 and 1955, have as one aim the development of an improved heat stress index to aid training officers and medical officers in predicting and preventing heat strain and heat illness resulting from varying combinations of host, agent, and environmental factors. (David Minard, LCDR MC USN, PrevMedDiv, BuMed)

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Prevention of Human Rabies

This dreaded disease has been known since the dawn of civilization. Stone murals from ancient Rome, Greece, and Egypt depict mad dogs; Greek mythology has reference to the disease. Gradually, its world-wide distribution was realized. A few geographically isolated areas have remained free--Australia, Hawaii, and some of the smaller islands. The earliest account of rabies in North America was in 1768, when the disease appeared in the vicinity of Boston. From this focus, it gradually spread with the settlement of the country, and by 1900, was enzootic over most of the United States.

In the ancient world, the weeks of late summer were known as "dog days," when Sirius, the Great Dog, brightest star in the heavens rose in the morning and supposedly added its heat to that of the sun. Dogs were thought, at this time of year, to be subject to seizures, giving rise to the ancient belief that rabies was caused by extraterrestrial forces; however, epizootics may occur at any month and it has been found that the incidence of rabies is fairly uniform throughout the year.

The simple epidemiologic pattern of dog-bites-dog and dog-bites-man has been known for centuries. It is ironic that the dog, man's companion and closest friend, should, by that very fact, be the usual source of human exposure to rabies virus. Actually, the host range of rabies is one of the widest in the disease spectrum. All mammals, including the bat, are susceptible, and a wildlife reservoir exists as a constant source of reinfection of domestic pets.

Prophylaxis did not become a reality until 1885, when Pasteur discovered that virulent rabies virus, when passed serially through the brains of rabbits, became "fixed" or modified to a point of safety for human immunization. Over the years, various agents have been proposed for inactivating the fixed virus: formalin, chloroform, ether, mustard, ultraviolet irradiation, and phenol. The fixed virus inactivated by phenol, first proposed in 1911 by Semple of Calcutta, India, is probably the one most widely used in the United States today. New developments indicate that more effective and less toxic vaccines should be available within a few years.

The ratio of deaths to persons treated in the group sustaining face injuries has been reported to be 1:160, whereas, the corresponding ratio in the group with injuries to the legs and feet was 1:6070. This comparative failure of the Pasteur treatment to prevent rabies, following bites about the head, neck, or upper extremities, has been known for many years and has indicated the need for methods conferring high degrees of immunity within a relatively short time after exposure.

The present vaccines have also been less than ideal on the score of safety and tolerance. Painful erythema and edema at the site of injection is the most common type of reaction. On this, may be superimposed fever, headache, nausea, lymphadenopathy, and malaise--in which event it is wise to discontinue treatment. These symptoms may be a warning of the truly grave unfavorable reactions; namely, encephalitis and paralysis. Central nervous system involvement, indicated by peripheral neuritis, dorsolumbar myelitis and acute ascending (Landry's) paralysis, calls for immediate cessation of treatment because postvaccinal encephalitis and paralysis may be fatal.

At the spring meeting, the Armed Forces Epidemiological Board unanimously approved the following recommendations of its Commission on Immunization with respect to the use of hyperimmune serum as an adjunct in the prophylaxis of rabies:

> "That hyperimmune antirabies serum be employed as a routine in conjunction with rabies vaccine in the prophylaxis of rabies among military personnel and their dependents. That in severe head injuries the antiserum should be repeated on the fourth day."
>
> "These recommendations are based on the striking results reported from the observations in Teheran, but because precise indications for the use of this serum have apparently not been clearly defined, the Board further recommends that appropriate steps be taken to insure that adequate records are kept of the administration of this serum, and further, that such records be centrally collected for future analysis with a view to obtaining more adequate information as to precise indications for its use."

Antirabies serum (at the present time manufactured and sold in the United States only by Lederle Laboratories) is derived from the blood of horses

which have been hyperimmunized by replicate injections of a fixed rabies virus. The horse sera has been found to be superior to the earlier sheep-derived sera, particularly in that its use is followed by a lower degree of serum sickness in human patients. Because more than 24 hours often elapse following exposure before treatment is begun, studies were made on the effect of delayed administration of antiserum upon the course of rabies. It was found that antiserum had little or no protective effect if administration was not begun until more than 72 hours after exposure. Antirabies serum is recommended as an adjunct to the prophylactic treatment of all individuals who have been exposed to rabies infection; particularly those who have been exposed to bites about the head and neck. The indications for prophylactic treatment of rabies in humans can be found in NAVMED P-5038, The Control of Communicable Diseases in Man. The recommendations concerning hyperimmune antirabies sera in this a article should be considered as supplemental to those indications. Because this serum is of horse origin, persons known to be allergic to horses or products derived from this animal should be treated cautiously, and every patient should be tested for sensitivity to horse serum before injecting rabies antiserum. This serum is packaged in 1000-unit vials, and the dosage is approximately 1000 units (1 vial) per 40 pounds of body weight, administered intramuscularly, preferably in the gluteal region. The cost is expected to be between $8 and $9 per vial. The potency period is 24 months, and normal refrigeration, 35° - 50° F. (2° - 10° C.), is required. Antirabies Serum, Lederle, is not currently standardized but may be purchased locally.

Two hundred and fifty persons, most of them severely and dangerously bitten, have been given this new hyperimmune serum plus Semple vaccine. None have developed rabies. In Teheran, one child bitten by a known rabid wolf, had direct inoculation of the virus into the brain and meninges. Repeated doses of the hyperimmune sera were given and the child recovered. (J. F. Egan, LT MC USN, PrevMedDiv, BuMed)

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Hazards of Radioactive Materials

It is the duty of naval industrial medical officers to know about the use of radioactive devices on their respective stations to be sure that adequate precautions for safe handling are in force.

The Atomic Energy Commission controls the sale and distribution of fission radioactive isotopes under the authority of the Atomic Energy Act of 1954 (Public Law 703). A prospective user must satisfy the AEC that he knows how to handle radioactive isotopes safely.

The changes produced in tissue cells as a result of exposure to x-ray, gamma rays, or alpha and beta particles are due to the changes produced in the atoms and molecules composing the cell matter. Such radiations ionize the atoms through which they pass by affecting either the orbital electrons or the nucleus so as to upset the electrical neutrality between the positively charged nucleus and the negatively charged electrons. In the tissue cells, radiation will ionize any atom or molecule in its path whether it be an atom or molecule of water, protein, or other chemical constituent of the cell. Because the main element in living cells is water, the water molecule is more apt to be ionized than other less common constituents. Ionization of water may give rise to four very active oxidizing agents: H_2O_2, O, and the free radicals, -OH, and $-HO_2$. It is believed that these may interfere with normal cell chemistry by inactivating cellular enzymes through oxidation of the sulfhydrol groups. Other possibilities are the disruption of the cell protein or damage to the nuclear material in the cell.

The widespread use of hazardous radioactive materials throughout naval industrial activities has introduced new medical problems. As long as these were confined to limited spheres, the combined efforts of the health physicists, biologists, chemists, and industrial physicians kept the situation well under control. This responsibility now rests upon the shoulders of naval industrial medical officers attached to stations where hazardous radiological materials are used. (A. J. Fleming, M. D., Medical Director, E. I. du Pont de Nemours & Company, Hazards of Radioactive Materials, Transactions Bulletin No. 28 of the Industrial Hygiene Foundation of America, Mellon Institute, Pittsburgh, Pa., page 90)

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Chemical Hazards

Aerosol Treatment in Some Acute Inhalation Poisonings. The possibilities of using aerosol inhalations in treating cases of poisoning from certain caustic gases, smokes, and vapors were investigated. In cases of poisonings with cadmium oxide and phosphorus oxychloride, the threatening pulmonary edema was controlled by the administration of aerosol inhalations of sodium bicarbonate to neutralize the inhaled substances, procaine for anesthesia and relaxation of spasm, calcium for strengthening of cellular membranes, and penicillin prophylactically against infection (K. Kadlec and J. Vyskocil, Industrial Hygiene Digest, Vol. 19, No. 4, pp. 14-15, April 1955)

Lead Poisoning in a Carpenter's Shop. Cases of lead poisoning were found in a carpenter's shop in which red lead paint was removed from precut

wooden houses. The carpenter had been exposed to the lead-containing dusts by inhalation and ingestion. Exhaust ventilation of the sanding machines, vacuum cleaning of the floors, suitable respirators, and education of the workmen prevented further exposure. Those with indications of lead poisoning were removed from the work. (S. Hickling, New Zealand Med. J., 53: 423-425, August 1954)

The Diagnostic Value of Myelogram in Lead Poisoning. The marrow of 100 persons with definite or suspected lead poisoning was inspected by sternal puncture. Soon after the beginning of lead absorption, the blood contains basophile red cells, and mild anemia and diminution of the hemoglobin are observed. The marrow does not show these changes until much later, by which time macrophages are abundant, particularly in chronic cases. This hyperplasia of macrophages is of considerable diagnostic value. These changes in the marrow persist for 3 or 4 months but when BAL is administered the marrow quickly becomes normal, perhaps in a month. In delayed lead poisoning, symptoms and blood change appear long after exposure has ceased (in one case these changes appeared more than 5 years afterward), and the myelogram changes persist still longer in such cases. The practical value of inspecting the marrow in the diagnosis of lead poisoning is considered to be indisputable in certain cases. (P. Morel, L. Roche, and J. Baron; Arch. mal. profess., 15: 308-311, French, 1954)

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Secretary of the Navy Safety Awards Winners for 1954

The following Bureau of Medicine and Surgery activities have received the 1954 Secretary of the Navy Awards for Achievement in Safety:

Industrial Awards

Naval Hospitals:

- Annapolis, Md. (third time)
- Bainbridge, Md. (third time)
- Beaufort, S.C. (third time)
- Bremerton, Wash. (second time)
- Camp Lejeune, N.C. (third time)
- Chelsea, Mass. (first time)
- Guam, M.I. (fourth time)
- Guantanamo Bay, Cuba (fourth time)
- Jacksonville, Fla. (first time)
- Key West, Fla. (first time)
- Oakland, Calif. (fourth time)
- Philadelphia, Pa. (third time)
- Portsmouth, N.H. (second time)
- San Diego, Calif. (second time)

National Naval Medical Center, Bethesda, Md. (second time)

Motor Vehicle Awards

Naval Hospitals:

Bainbridge, Md. (second time)
Beaufort, S. C. (third time)
Camp Pendleton, Calif (second time)
Chelsea, Mass. (first time)
Guantanamo Bay, Cuba (third time)
Jacksonville, Fla. (fourth time)
Mare I. Calif. (second time)
Memphis, Tenn. (fourth time)
Newport, R. I. (first time)
Pensacola, Fla. (first time)
Portsmouth, N. H. (second time)
Quantico, Va. (third time)

Naval Medical Research Unit No. 3, Cairo, Egypt, (first time)

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☆U. S. GOVERNMENT PRINTING OFFICE: 1954 O—361329

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