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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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Treatment of Aneurysms of the Circle of Willis

The prognosis of spontaneous subarachnoidal hemorrhage caused by rupture of aneurysms on the circle of Willis has been the object of several recent investigations. It is evident from the figures presented that the prognosis of these aneurysms once they have started to bleed is very serious, between 35 and 50% of the patients dying from the effects of the initial hemorrhage. A considerable portion of those dying during the initial attack do so within the first 48 hours (according to Dandy's figures, about 50%) and about half of these die within the first 24 hours.

Recurrent bleeding occurs in a large number of patients who survive the initial attack. The percentage of recurrent bleeding shows rather wide variations in different statistics, from 20% reported by Hyland up to 50% reported by Hamby. All agree, however, that the mortality attending secondary hemorrhage is even greater than in the initial bleeding, and mortality figures up to 70 and 80% have been reported.

Two quite different problems are involved in the treatment of intracranial aneurysms. The first and most pressing question is what kind of surgery, if any, should be performed on aneurysms in the acute stage of hemorrhage. The second problem, which appears to be much easier to solve, is what should be done to prevent recurrent bleeding. Unfortunately, the statistics so far published do not distinguish between these two problems, and the results of various procedures are assessed regardless of the stage of the aneurysm in relation to leakage.

In the stage of acute hemorrhage an aneurysm is a very grave condition entailing great danger to life and to function in case the patient should survive. It may be said in consequence that considerable surgical risk may be justified if the mortality attending the first attack of subarachnoidal hemorrhage can thereby be materially reduced. However, the timing of the

operation is a factor of such great importance that without information on this point no conclusions at all are possible concerning the result. Among the large number of cases reported in the literature such information is available only in isolated instances.

The authors' material shows that of 15 patients operated on between a few hours up to 22 days after onset of hemorrhage, 8 died. Good recoveries followed in 6 cases and in 1 case hemiplegia set in gradually the day after operation and became permanent.

The authors' impression from these experiences is that (1) when massive hemorrhage has occurred, no operation is likely to save the patient, and that as a rule it is useless to operate unless the patient survives the first 2 days, and (2) the circulation of the brain is profoundly disturbed during the first 2 or 3 weeks following hemorrhage, and this disturbance is the result of both the increase in intracranial pressure, and the vasoconstriction almost invariably present in these cases. Unless some method can be found to eliminate vasoconstriction after the neck of the aneurysm has been clipped, it is probably better to abide by conservative treatment. The authors are, at present, experimenting with papaverine and permanent perfusion of the superior cervical ganglion as recommended by Poppen, but whether either or both of these methods will contribute materially to reduce the hazards of early operation cannot yet be determined. It is perhaps also possible that by postponing the operation until such time as the vasoconstriction begins to subside spontaneously the dangers of the operation may be reduced. This would appear to be about 3 weeks after hemorrhage as found by Ecker and Riemenschneider, a view that is also supported by the authors' experiences.

Operations after the patient has recovered from the initial hemorrhage are to be considered as a prophylactic measure aimed at preventing further hemorrhage. Clipping of the neck of the aneurysm is the best method for this purpose. Mortality and morbidity, when this operation is performed 3 to 4 weeks after the last attack of bleeding, is very low and protection against future hemorrhage is excellent. (J. Neurosurg., July 1953, G. Norlen and H. Olivecrona, Stockholm, Sweden)

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Surgical Management of Cerebritis Complicating Penetrating Wounds of the Brain

One of the most disheartening complications of penetrating wounds of the brain is the development of cerebritis which is commonly accompanied by formation of a cerebral fungus. Experiences in World War II and in the Korean War have shown that earliest possible definitive neurosurgical care of patients with penetrating wounds of the brain should be considered the largest single factor in the prevention of such cerebritis.

Cerebritis as a sequel of penetrating wounds of the brain may be induced by delayed surgical intervention, or by the retention of debris, devitalized tissue, and bone fragments. Improper wound closure or faulty healing may then lead to the formation of a cerebral fungus. Though there are many proposed regimens for handling cerebral fungi, the management of frank cerebritis has seldom been approached surgically. This article proposes a method of "open" surgical treatment of fulminating, fungating cerebritis based on the experiences of one of the authors in the Okinawa Campaign (1945) and on joint experiences in the Korean conflict. The employment of this method has been associated with a reduction of mortality and morbidity and has been an essential factor in lessening the ultimate neurological deficit.

The method of choice in the management of penetrating missile wounds of the brain is earliest possible definitive neurosurgical intervention with radical debridement, removal of all devitalized tissue, and primary closure of the dura mater and scalp. The early phase of the Korean War presented the opportunity to see patients with fulminating, fungating cerebritis as a sequel of untreated, or inadequately treated, missile wounds of the brain. Although all patients in this series had received adequate dosages of antibiotics from the very beginning, cerebritis developed in association with the prolonged retention within the cranial cavity of devitalized tissue, clots, and bone fragments. The marked increase in the neurological deficit and the high mortality in those who were subjected to surgical resection of the area of cerebritis and primary closure, led the authors to adopt the "open" method of treatment which is described in this article. Its employment, however, has been reserved for previously untreated missile wounds with fulminating, fungating cerebritis and for those patients in whom such cerebritis had developed following inadequate debridement and closure.

Of the 15 patients in the authors' series who had been operated on prior to institution of open therapy, 13 presented an infected fungus or a draining sinus which led through small openings in the scalp and dura mater to a large underlying area of cerebritis. The remaining 2 were operated on because of bulging flap and other signs of increased intracranial pressure. When the suspected cerebritis was found, it was resected and subjected to open therapy.

Two patients in the series had accompanying lacerations of the sagittal sinus. In 1 the laceration was anatomically complete with thrombosis of the distal and proximal openings into the sinus. In the other there was laceration of the sinus with thrombosis proximal to the tear. The thrombus was evacuated and the laceration was repaired by primary suture and gelfoam.

The presence of ventricular penetration may complicate an existing cerebritis or fungus, but should not deter the institution of open therapy. Ten patients in this series presented ventricular perforations at the time of first operation at the Neurosurgical Center at the Tokyo Army Hospital.

The duration of open treatment varies from 3 to 82 days with an overall average of 24 days. Though early closure is most desirable, prolonged open therapy is believed to be justified by ultimate cure of an otherwise hopeless situation.

Definitive resection at time of creation of the open wound is advantageous though not always feasible. In some instances further demarcation of nonviable brain necessitates interval resection. In this series 7 patients required from 1 to 3 interval resections. In 4 patients, from 1 to 4 minor procedures for scalp closure were necessitated by failure of scalp healing without recurrence of fungus or cerebritis. (J. Neurosurg., July 1953, A. M. Meirowsky and G. R. Harsh III)

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Intraspinal Neoplasms in the Cervical Region

This article summarizes the clinical and pathologic features in 179 cases of intraspinal neoplasms in the cervical region in which surgical treatment was utilized. Excluded from this series of cases were intracranial and thoracic intraspinal tumors that appeared to involve only secondarily the cervical segments of the spinal cord.

These neoplasms consisted of 64 neurilemmomas, 41 meningiomas, 41 gliomas, and 33 miscellaneous tumors. Sixty-eight tumors were intradural, 46 intramedullary, and 16 extradural; the remaining 49 lesions could be termed "dumbbell tumors."

Patients who had meningiomas were usually older than those who had neurilemmomas; the latter were usually older than those who had gliomas. The average preoperative duration of symptoms was 40.9 months. Ependymomas, however, produced symptoms for 51 months on the average.

Sixty percent of the patients experienced distinctive pain as the initial symptom. Pain was valuable in suggesting the presence of an intraspinal tumor and important in a determination of the level of the tumor; the presence or absence of pain and its character were related remotely, if at all, to the type of tumor.

The reflexes were altered in all but 10 cases. The tendon reflexes in the upper extremities were diminished in 67% of the cases of intermedullary tumor, while 20% of neurilemmomas and only 12% of meningiomas were associated with such changes in reflexes. Weakness and sensory disturbances could be demonstrated in the vast majority of patients, of whom an appreciable number had signs deceptively limited to the lower extremities. Stiff neck, tenderness over the cervical region of the spinal column, and a palpable mass in the neck were often present and suggested the cervical region as the site of the neoplasm.

Clinical features have been described that ordinarily are not expected to be associated with intraspinal tumors. Such features appear to be related to the anatomic characteristics of the cervical portion of the spinal cord, including its proximity to the intracranial contents.

Lumbar puncture with manometric studies and examination of the cerebrospinal fluid disclosed either a dynamic block or a value for protein of more than 40 mg. per 100 cc. or both in all but 6 of the cases in which these tests were performed. (J. Neurosurg., July 1953, J. H. Webb, W. McK. Craig, and J. W. Kernohan)

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High Cervical Chordotomy

This is a preliminary report made on a group of 12 consecutive cases, with far-advanced malignant diseases associated with severe intractable pain not controlled by surgery, roentgen therapy, or narcotics. In these patients the bilateral operation was performed between the first and second cervical segments. As the purpose of this study was to prove that the bilateral one-stage high cervical chordotomy was feasible, there was no selection of patients as to etiology of pain, location of pain, or life expectancy. The only criteria was that the pain be below the fourth cervical dermatome. Patients were operated upon in varying degrees of debilitation; with neurosurgical deficits, both motor and sensory; with urinary and fecal incontinence; and in varying stages of narcotic addiction.

This series demonstrates that the bilateral high cervical chordotomy performed at a single stage is a practical operation. Although there was 1 death, 16 days after surgery from renal failure, there were no deaths which could be attributed directly to the surgical procedure and no patient showed signs of respiratory embarrassment. The operative morbidity was considerably less than that usually seen following dorsal chordotomy. Although early in this series all patients were bedfast for periods of from 7 to 10 days, the more recent ones were allowed up on the second or third day and were discharged within a week's time. Postoperative pain was confined to some headache for 1 or 2 days, associated with pain and stiffness of the neck.

The signs of damage to neighboring pathways, as an aftermath of the incision in the cord, were almost negligible. There were no patients in whom motor weakness has been produced, nor were neurological deficits existing prior to operation accentuated. A single patient exhibited absence of sweating on one side of the face, but there were no instances of classical Horner's syndrome.

As with bilateral chordotomies elsewhere, sphincter incontinence was the major postoperative complication. Only 1 patient who had not had incontinence prior to operation developed a lasting bladder sphincter incontinence.

In this patient, there was extensive involvement of the pelvis by carcinoma, which undoubtedly played an important role in the failure to regain bladder control. There was a temporary loss of sphincter control lasting up to 10 days in 4 additional patients, all but 1 of whom had extensive pelvic disease. There is little doubt that the instances of sphincter incontinence were directly related to involvement of the pelvic viscera and lumbosacral plexus. (Surgery, Aug. 1953, G. E. Roulhac)

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Infected Cystic Disease of the Lung

Infections of areas of the lung containing multiple small cysts gives rise to a definite chain of events, and to certain recognizable changes. Treatment is excision of the involved pulmonary tissue, and cure is the usual result. Although there are many articles on pulmonary cysts practically no attention has been given to the problem of superimposed infection of cystic areas. In this article the clinical problem as seen in 26 cases during the last 5 years is discussed.

Of the 26 cases, 9 had had resections of the involved areas. Two had exploratory thoracotomies and were found to have too extensive involvement of the lungs to permit resection. In the others the diagnosis was made on the basis of history and roentgen ray studies. The 9 patients in whom resections were done had their disease limited to one lobe, or a portion of it. In every instance there was evidence of multiple cysts with obvious infection in them, and in the adjacent tissue. The rest of the lung appeared normal. In 1 instance, the disease was confined to the lower segments of the lower left lobe and the upper segment was normal.

Acute pneumonitis marked the onset of symptoms in practically all of the authors' patients. At that time the diagnosis was always pneumonia. Roentgenograms showed shadows that were consistent with the diagnosis of virus pneumonia, but in a few instances there were radiolucent areas which suggested the presence of cysts. Under the usual care for pneumonia symptoms subsided, but in all instances there was little evidence of change in the roentgen appearance. This persistence of a shadow in the roentgenogram supported the diagnosis of virus pneumonia, and it was not until many weeks later that the persistence of the roentgen ray changes indicated that this diagnosis would not suffice. Following the subsidence of the acute symptoms suggesting pneumonia, the patients continued to cough and most of them raised sputum. In a few instances blood was mixed with the sputum, or coughed up in small quantities. Some of the patients had localized chest pain. Fever and malaise were less common.

Solitary cysts, found on routine roentgenograms, or producing symptoms, are readily removed and the result is good. Infected solitary cysts have been frequently confused with abscesses, or even empyema. In the

past, when abscesses were only drained, to confuse an infected cyst with a simple abscess was most disappointing, and many papers were written about them. Pulmonary cysts which rupture and give rise to spontaneous pneumothorax are readily removed, or otherwise treated, with excellent results. Even cases in which there are multiple or bilateral cysts are amenable to surgery, and the chances for great improvement are good. Only in those rare instances where there is a true diffuse cystic condition of both lungs, with minute or large cysts, is the prognosis hopeless.

The pathogenesis of pulmonary cysts has been discussed in the literature from every angle, and the authors have no desire to enter the debate. Whether the condition described as infected cystic disease is the result of infection of a congenitally cystic area of the lung, or is an area of chronic pneumonitis with cystic changes as a result of the infection, the authors cannot say. Most of the sections from the areas of cystic disease which they have removed at operation have shown multiple small cysts, lined with columnar epithelium resembling the lining of bronchi. The authors are aware of the observation of Potts and his associates on the development of pulmonary cysts in the lungs of infants following recovery from staphylococcus pneumonia, but they are solitary cysts, and of considerable size. The authors believe that the areas of small cysts which they have encountered, and found to be infected, are congenital in origin. Whether or not a pulmonary cyst is of some other origin it is well known that when they become infected, they rarely, if ever, return to their former state. It would seem that congenitally abnormal tissue is less resistant to infection than is normal tissue. Another patient with a diagnosis of infected cystic disease of the lung on whom the authors operated was found to have chronic pneumonitis involving the lingula of the left upper lobe. The entire lobe was without pigment and appeared to be fetal. Microscopic studies confirmed this impression. One factor that would seem to hinder the natural defense of the cystic area, or of fetal lung, is the absence of functioning cilia. In both areas there was absence of recognizable bronchioles, and terminal bronchi.

There can be little difference of opinion as to the treatment of infected cystic disease. Excision, with salvage of as much normal lung tissue as possible, seems obvious. There is no evidence that cystic tissue, once infected, can completely lose this infection, or long escape reinfection. And any patient who harbors such a lesion cannot hope for restitution to normal with his lungs intact.

In establishing the diagnosis the most important point is awareness of the possibility of the lesion being present. With this in mind more and more cases of chronic localized pneumonitis will be found to be due to infected cystic disease. Since this paper was presented, 10 more patients with infected cystic disease of the lung have been treated by pulmonary resection with good results in all. (Dis. Chest, Aug. 1953, R. H. Meade and R. A. Rasmussen)

Kaposi's Sarcoma

A small brown, blue, or red macule is generally the first manifestation of Kaposi's sarcoma or angioreticulomatosis. Nodules and plaques subsequently develop and both are present in most fully developed cases; occasionally only one type is present or one may predominate. The nodules are firm and vary from a few millimeters to 2 or 3 cm. in diameter. They may be few in number or may be quite numerous, Babes having observed 450 in 1 patient. The tumors may be discrete, or several may coalesce to form large masses. They, as well as the plaques, tend to be bluish, bluish red, or reddish brown in color. The plaques, which are usually well demarcated, may be small or may reach a size of 20 cm. or more. In the early stages these are only slightly indurated, but as the lesions age the induration increases. Telangiectases may be present in the skin overlying the tumors. Nodules and plaques have been observed developing in areas of purpura. Lesions simulating cysts, bullae, and lymphangioma circumscriptum have been reported, as have deeper angiomatous tumors resembling simple angioma and granuloma pyogenicum. In rare instances the disease may appear in the form of tumors from the start (the "d'amblée" variety).

The eruption usually begins on the hands and feet, more frequently the latter. However, it may start anywhere on the body. The disease tends to be unilateral early in its course, later becoming bilateral. The lesions may be few in number and localized to one area or there may be extensive involvement not only of the extremities but also of the face, trunk, and the visible mucous membranes.

A common feature of Kaposi's sarcoma is swelling of the extremities. This may be the first evidence of the disease. In some cases the pitting edema stops abruptly just below the knee or elbow so that the leg and foot or the forearm is markedly enlarged while the thigh and arm are of normal size. In others the entire extremity may be involved. The cause of this type of swelling, which resembles that due to congestive heart failure, is unknown.

The multiple theories as to the nature of Kaposi's sarcoma have been divided into four main groups by Choisser and Ramsey: (1) neoplasm, (2) infectious granuloma, (3) infectious granuloma with neoplastic potentialities, and (4) reticuloendothelial hyperplasia. There has been little mention in the American literature of the interesting investigations of Greco and collaborators, who studied Kaposi's sarcoma in several members of the same family and concluded that the disease had an infectious, mycotic origin. They called it a myco-hemo-angio-endothelitis with colliquative dermo-epidermic reaction and named the pathogenic fungus Cryptococcus hoematicon. European investigators, however, have been unable to confirm Greco's findings. At present it is generally believed that the disease is a neoplasm, some maintaining that it is primary and others that it is secondary to chronic hyperplastic inflammation and granuloma. Among those who believe that the dis-

ease is a neoplasm, considerable difference of opinion exists as to the cell of origin. This, to a large extent, is due to the varied histologic pictures which may be observed.

As pointed out by MacKee and Cipollaro, in the early stages the pathologic process tends to be inflammatory, with dilatation of blood vessels and lymphatics, edema, hemorrhage, and a perivascular infiltrate of round cells, connective tissue cells, and some plasma cells. . Later the granulomatous element may predominate, proliferation of small vessels and connective tissue being added. In the late stage the neoplastic features are most marked and, depending on whether the vascular or the connective tissue elements predominate, the picture may be that of an angioma, granuloma, lymphangioma, fibroma, spindle cell sarcoma, or angiosarcoma. The pathologic changes which occur in the viscera are the same as those in the skin. Sachs, Azulay, and Convit, on the basis of their histopathologic studies, have suggested that glomus tumor, granuloma pyogenicum, and Kaposi's sarcoma are all angio-blastomas. They further concluded that Kaposi's sarcoma may be subclassified as a systemic angiosarcomatosis.

Diagnosis on the basis of the history and clinical appearance of the cutaneous lesions is relatively easy. When the tumors are few in number, involve unusual sites or do not have the typical appearance, differentiation from various benign and malignant tumors such as angioma, angiosarcoma, granuloma pyogenicum, and lymphoblastoma may require histologic studies. The majority of individuals with visceral lesions present no symptoms referable to them and in most cases the lesions are discovered at autopsy. However, hemorrhage, diarrhea, abdominal pain, intussusception, and emaciation may be manifestations of the disease. It is in such cases that cutaneous tumors may supply the clue as to the nature of the internal disorder.

X-ray therapy is almost universally accepted as the treatment of choice for Kaposi's sarcoma. Most lesions respond promptly to doses of 75 r, unfiltered, at weekly intervals. Large doses are not recommended.

New lesions continue to appear, treatment serving primarily to increase the comfort of the patient. Even without treatment, as pointed out by Grinspan, macular, infiltrative, and tumoral lesions will occasionally disappear spontaneously, leaving an atrophic scar and pigmentation. Generally the individual lesions do not produce symptoms, but when a great many are grouped on one extremity and there is considerable edema, or when ulceration develops (usually after trauma), there may be discomfort and impairment of function.

As summed up by MacKee and Cipollaro, the course of the disease is generally slow but at times it may be rapidly progressive. Their studies indicated that the average duration is from 5 to 10 years, with death generally due to intercurrent disease or some complication but often the result of hemorrhage and emaciation secondary to visceral involvement. (Postgraduate Medicine, Aug. 1953, F. Ronchese and A. B. Kern)

Familial Pheochromocytoma

Satisfactory surgical treatment of pheochromocytoma requires that the surgeon be mindful of certain pathologic characteristics of these tumors. Although pheochromocytoma is usually found as a single, encapsulated, benign tumor located in one adrenal gland, exceptions occur in all these respects. In other words, tumors of this type may be multiple, malignant, bilateral, and located elsewhere than in an adrenal gland. Because of the relative infrequency of these tumors, it is difficult to state definitely the exact percentage of cases in which these variations from the usual findings may be encountered. However, they occur with sufficient frequency so that the surgeon should perform an operation for this type of tumor in such a manner that regardless of the findings a satisfactory surgical procedure can be conducted. Although various approaches have been employed to expose the adrenal glands, including posterolumbar, transthoracic, and thoracicoabdominal, a high transverse, slightly curved abdominal incision has proved most satisfactory in the authors' experience. Fortunately, the patient who has pheochromocytoma is almost invariably thin, and an approach of this type affords not only ready simultaneous access to both adrenal glands but also permits thorough general abdominal exploration if the tumor is not situated in the adrenal glands.

Both adrenal glands should be explored in every case, as there is no way of being certain prior to operation whether or not bilateral tumors are present. Likewise, search for a tumor in a possible ectopic location within the abdomen should be a routine procedure. These tumors also have been found in rare instances in the thorax or even in the neck. Palpation of and pressure on, the tumor should be minimized during its removal because of serious vasopressor effects which may result from these manipulations. Blood supply of the tumor should be interrupted as soon as possible during removal of the tumor. It is most unusual that an adequate amount of adrenal tissue cannot be preserved, even when bilateral tumors are present, but care should always be exercised in this regard. In case of any question concerning the adequacy of adrenal tissue which is preserved, prompt substitution therapy is most important: If the patient has had sustained hypertension before operation, blood pressure should fall precipitously after removal of all tumor tissue. If such a drop in pressure does not occur after removal of a tumor, the presence of additional tumor tissue should be suspected. A pharmacologic test performed at this time with one of the vaso-depressant agents, such as phentolamine, may afford valuable additional evidence concerning the persistence of tumor tissue.

It is of interest that from the anatomic and pathologic standpoints the tumors in the 3 cases reported were similar, but the clinical manifestations were different. In each case, both adrenal glands were involved, and the tumors on each side consisted of multiple nodules. Although the total amount

of tumor tissue varied somewhat, being greatest in Case 2 and least in Case 3, the first patient presented the clinical syndrome of fulminating malignant hypertension with severe retinopathy, the second presented the picture of a chronic hypertension of moderate severity with intermittent attacks which were at least suggestive of hyperadrenalism, and the third patient had no hypertension and his symptoms were minimal. It is unlikely that the third patient would have sought medical aid or that the diagnosis would have been made if tumor had not been diagnosed and removed successfully from his 2 sisters. It is probable that the father of these 3 patients died of pheochromocytoma. His history of hypertension with attacks of palpitation, headache, excessive sweating, and weakness was very suggestive of pheochromocytoma.

The authors' experiences with these 3 patients emphasize the importance of controlling hyperadrenalism during operations for these tumors and of continued close observation of the patients during the immediate postoperative period with immediate institution of substitution therapy with epinephrine and arterenol if symptoms of shock develop.

The second patient was of particular interest in that after removal of the tumors there was no remaining cortical adrenal tissue, as far as could be determined at the time of operation. In spite of the fact that the clinical picture of adrenal cortex insufficiency developed subsequently, this was completely controlled by continued therapy with cortisone and desoxycorticosterone acetate. It was of further interest that with the aid of this substitution therapy, this patient subsequently went through a pregnancy and was delivered of a normal child without untoward incident, in spite of the fact that the delivery required manipulation with forceps because of the occipitoposterior position of the child. Such an occurrence has been reported previously in patients with Addison's disease.

So far as the authors know, this is the first report of the diagnosis and successful removal of bilateral pheochromocytomas from 3 members of the same family, 2 sisters and a brother. Likewise, to the best of their knowledge, there has been no previous report of the successful surgical removal of bilateral pheochromocytomas in a single operation. (Arch. Surg., July 1953, G. M. Roth, N. C. Hightower, Jr., N. W. Barker, and J. T. Priestley)

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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 addresses.

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Prolapsing Ureterocele

Ureterocele, or intravesical cyst of the ureter, is an intravesical ballooning of the distal end of the ureter with involvement of all the component layers of the ureteral wall although the involvement of the middle coat is usually minimal.

Ureterocele is a relatively common lesion to the urologist. It has been estimated that ureterocele will be present in 1 of each 30 complete genitourinary studies in children. The size of the ureterocele will vary greatly; it may measure less than 1 cm. or may fill the entire bladder. Approximately 15% of all cases of ureterocele are bilateral, with right- and left-sided involvement being about equal. The lesion is estimated to be four times more frequent in the female than in the male. In one half of these cases there are other co-existent urogenital tract anomalies. In reduplicated upper urinary tracts two-thirds of the cases of ureterocele involve the ureter which drains the upper pelvis.

The symptoms of ureterocele are largely those of ureteral obstruction which, if allowed to persist, usually result in hydro-ureteronephrosis. The presence of the ureterocele and its complicating pathological changes is easily demonstrated by a complete urologic survey. Excretory urography will present the so-called classical "cobra head" or "spring onion" filling defect in the lower end of the ureter. Commonly associated complications are most often stasis, infection, and calculus formation, with the latter complication occurring in from 4 to 5% of all cases.

Prolapse of an ureterocele is not common. Emmett and Logan in 1944 surveyed the literature and collected 37 cases, recording 1 additional case at the time. Twenty-five of the thirty-eight cases occurred in adults and 13 occurred in children less than 15 years of age. In the same year Kickham and Birdsall and Abernethy each presented an additional single case, bringing the total to 41. Hurwitz and McDonough in 1945 reported the forty-second case. Ortmyer, Koester, and Stetler in 1946 presented the forty-third case. Ingerslev in 1947 and Adams in 1949 presented the forty-fourth and forty-fifth cases, and Merricks and Herbst in 1950 presented the forty-sixth case. All cases reported were in females. This is not unusual owing to the limitations imposed by the male anatomy. Of the 13 children reviewed and reported by Emmett and Logan, there was a variation in ages between 13 days and 14 years. In this group of children only 5 of 13 survived operation.

Ureterocele, if the prolapsing type, in addition to the symptoms and complications associated with simple ureterocele, is further complicated by producing varying degrees of vesical neck obstruction. Gangrenous changes of the prolapsed mass must also be considered. In differentiating prolapsed ureterocele from prolapse of the ureter it is only necessary to observe that in ureterocele there is a definite ballooning out of the smooth mucosal surface, whereas in ureteral prolapse there is only an eversion of the mucosa.

A case of prolapsing ureterocele is presented in an 11-month-old white female. The literature was reviewed and insofar as can be determined this appears to be the forty-seventh reported case. Surgical correction was instituted in the form of an ureteronephrectomy and extra-urethral excision of the ureterocele. Complete continence of urine has been maintained. (J. Urol., Aug. 1953, L. M. Orr and J. B. Glanton)

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Beriberi Heart Disease

Notwithstanding the fact that the occurrence of cardiac beriberi now is well recognized in several countries, it still is described among the rare types of heart disease in most of the modern textbooks of cardiology. However, in view of the authors' experience in Brazil, they have reason to believe that it is not such an unusual condition and that the apparent infrequency of beriberi heart disease is due to the fact that many cases are not recognized as such and are often confused with other more common and well-known types of heart disease.

During a 3-year period since the authors' attention was directed to this problem, beriberi heart disease has been identified in a series of 22 patients including occasional instances in which other associated etiologic factors were encountered.

Although thiamine deficiency among oriental populations is usually due to an inadequate diet, most cases of beriberi heart disease in this hemisphere occur as a result of chronic alcoholism. All the authors' patients were heavy drinkers, and only 50% had a history of an associated dietary deficiency. However, there was no evidence of malnutrition in any instance, because of the high caloric content of the alcoholic beverages consumed. Because the incidence of chronic alcoholism is far greater than that of beriberi heart disease, it is evident that other associated factors such as physical exertion, infectious diseases, thyrotoxicosis, pregnancy, and so forth must also play a role. At any rate the so-called alcoholic myocarditis, which was formerly believed to be due to the direct effects of alcohol on the heart, is not accepted by the most recent investigators. The excessive intake of alcohol predisposes to beriberi by inducing thiamine deficiency which is the primary factor in this condition. That alcohol does not play a direct role in this disease has been proved by the complete reversal of the clinical picture following the administration of large doses of thiamine to patients who maintain their usual intake of alcohol. Furthermore, many cases have been observed in which the development of cardiac failure occurs for the first time, following a period of several weeks or even months of total abstinence from alcohol. This is usually seen in individuals with digestive disturbances which undoubtedly maintain the thiamine deficiency.

Edema was the earliest and most frequent clinical manifestation. Variable degrees of dyspnea occurred in 20 cases during the course of cardiac failure, although it appeared as an initial symptom in 2 cases. A certain lability of the pulse rate was an interesting feature, particularly a transient bradycardia which usually appeared at the onset of clinical improvement. Blood pressure variations were observed, particularly a transient hypertension during the course of heart failure. Clinical signs of polyneuritis were present in all but 2 cases and were rarely of clinical significance. The main roentgenologic and electrocardiographic features are analyzed, emphasizing their reversibility on thiamine treatment. The occasional diagnostic difficulties in distinguishing cardiac beriberi from hypertensive and arteriosclerotic heart disease are pointed out.

There were 6 deaths in the present series caused by heart failure. Five cases came to autopsy and were all confirmed as representing instances of thiamine deficiency.

Considering the fact that the unfavorable prognosis of beriberi heart disease in certain cases is due to the prolonged duration of thiamine deficiency leading to an irreversible myocardial fibrosis, the early recognition of this condition is emphasized, because appropriate therapeutic measures at this time may result in a complete cure. (Am. Heart J , Aug. 1953, A. B. Benchimol and P. Schlesinger, Rio de Janeiro, Brazil)

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Treatment of Addison's Disease

An aqueous, microcrystalline suspension of the trimethylacetate ester of desoxycorticosterone was utilized in the maintenance treatment of 45 patients with chronic adrenal cortical insufficiency. Intramuscular injection of this compound produced effective electrolyte regulation, as demonstrated by metabolic balance studies, within 24 to 48 hours; the duration of action of a single intramuscular dose ranged from 4 to 8 weeks, with an average duration of 5 to 6 weeks. Optimal therapeutic control, however, was obtained by injection of maintenance doses at 30-day intervals. This schedule provided excellent control of body weight, blood pressure, hydration, and cardiovascular function.

Studies were carried out on patients with classic signs and symptoms of Addison's disease and a small group of subjects with carcinoma of the prostate who had been previously subjected to complete bilateral adrenalectomy. Patients were studied on the metabolism ward and in the out-patient endocrine clinic of the Peter Bent Brigham Hospital. Procedures utilized in the measurement of electrolyte balance, hematocrit, and blood urea nitrogen were described previously. Heart size was determined from 7-foot postero-anterior chest films taken during average inspiration; measurements were based on height-weight standards as described by Ungerleider.

Prior to the initiation of treatment with the trimethylacetate ester, 37 of these patients had been maintained by repeated implantations of desoxycorticosterone acetate pellets; the remaining 8 had received daily injections of DCA in oil. The most informative index, both for patients and physicians was the body-weight curve. A chart of daily weights, recorded on a printed form supplied to all patients, was submitted at intervals of 2 to 4 weeks. This procedure proved exceedingly helpful in assessing both initial and maintenance dosage levels.

The maintenance of body weight, blood pressure, hydration, and cardiovascular function during continued treatment with this compound was uniformly consistent. It is a pertinent fact that the great majority of patients in this series indicated a definite preference for this method of desoxycorticosterone administration. Its advantages over other techniques of dosage are: (a) infrequent injections; (b) flexibility of dosage schedules; (c) avoidance of the minor surgical procedure involved in the implantation of pellets; and (d) constant control, especially in comparison with the final 4 to 8 weeks of pellet therapy, during which time fatigability and muscular weakness are common. It is the authors' opinion that this technique of desoxycorticosterone administration currently constitutes the method of choice in the majority of patients. (J. Clin. Endocrinol., Aug. 1953, G. W. Thorn, D. Jenkins, W. L. Arons, and T. F. Frawley)

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Hypertension and Coronary Occlusion

Ever since coronary occlusion became a well recognized clinical entity, many writers have suggested that hypertension was a common antecedent of the condition in both men and women, and a significant factor in its etiology.

It is the author's opinion that the conclusions formerly reached concerning the relationship of hypertension to coronary occlusion are not valid. "High" systolic and diastolic blood pressures have been found in a majority of persons 60 years of age and older. Readings previously believed to be abnormal are too common to be considered so now. New definitions of hypertension, according to the age and sex of the patients, are evidently necessary. Because the average blood pressure rises with age and varies with sex, it is not reasonable to use the same definition of hypertension, for example, 150/90, or 150/96, or 160/100 for all ages, and for both men and women.

Using recently established limits of hypertension as the basis for a new study, the author re-examined the problem of the relationship between hypertension and coronary occlusion. Six hundred consecutive patients with coronary occlusion, seen in private practice, were studied. Five hundred

were men and one hundred were women, all under the age of 65. Patients over 64 were not included in this study, solely because the newly established blood pressure limits had not been determined for individuals beyond that age.

The blood pressure which had been present before the coronary occlusion occurred was the criterion. (The borderline cases were not considered in this report.)

Men sustain coronary occlusion much more frequently than women, and at an earlier age.

The frequency of hypertension in the men averaged 27.2%, and increased only slightly, if at all, with age. More than 70% had had a normal blood pressure before the onset of the coronary occlusion. Hypertension, therefore, is not the all-important factor in the causation of coronary occlusion in men. This conclusion differs from that of any reported studies on the relationship of increased blood pressure to the onset of coronary occlusion.

Seventy-one percent of the women had had hypertension preceding the attack. In women who sustain coronary occlusion, therefore, hypertension is a significant etiologic factor.

The results of a recent post-mortem study confirmed the author's clinical findings: hypertension did not appear to be a factor in producing coronary disease and occlusion among men, but was a definite factor in its causation among women.

The possible effects of the serum cholesterol, the S_f 12-2-lipoprotein fraction, and the sex hormones on atherosclerosis and hypertension are briefly discussed. These fields of investigation hold particular promise for the treatment and prevention of coronary disease in men and of hypertension in women. (Circulation, Aug. 1953, A. M. Master)

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Chronic Barbiturate Intoxication

Investigations of chronic barbiturate intoxication have yielded considerable information on physiological functioning, intellectual impairment, and personality changes during the course of addiction. This study is an attempt to add to this information by delineating several aspects of readiness to respond (motivation) and muscular coordination during the course of chronic intoxication with certain barbiturates and during the periods of withdrawal of drugs and of recovery from the drug effects.

Clinical studies from the Addiction Research Center, Public Health Service Hospital, Lexington, Ky., have amply shown that acute or chronic intoxication with large amounts of barbiturates (secobarbital, pentobarbital, and amobarbital) produces nystagmus, incoordination, ataxia in gait and station, and coarse tremors of the hands. The muscular incoordination of intoxicated persons is so obvious that the measures obtained in the present

study were recorded mainly for purposes of quantification and comparison. However, the effects of changing motivations upon the disorganized behavior observed during intoxication and withdrawal have not been investigated.

Ten male patient volunteers, addicted to barbiturates upon arrival at the Public Health Service Hospital, Lexington, Ky., were maintained on large doses of secobarbital (Seconal) for periods ranging from 35 to 90 days. Reaction times to visual stimuli and quantified measures of muscular coordination were taken (a) during the last week of addiction (intoxication), (b) after abrupt withdrawal of the drug, and (c) after recovery from drug effects.

Great loss of coordination was found during intoxication and during the first 8 days of the withdrawal period, with gradual improvement continuing through the remaining 10 days. Reaction time was found to be very greatly impaired during intoxication and early in the withdrawal period; but, unlike coordination, it showed significant improvement soon after withdrawal and thereafter gradually returned to the control level.

Differences in reaction time corresponding to various foreperiods, or delay times, were evaluated as motivational differences; i. e., they were evaluated as differences in ability to develop a "set" or a "readiness to respond." Insensitivity to changes in foreperiods was found during intoxication. Sensitivity increased after withdrawal of the drug and was apparently normal after 3 to 5 months of enforced abstinence.

In view of the observed severe muscular incoordination and lack of ability to acquire and maintain readiness to respond, it was concluded that the general behavior of chronic barbiturate users is very severely impaired. They lack the ability to prepare for and react efficiently in performing manipulative tasks. It appears, moreover, that they could not anticipate emergencies and that they would be very unsafe machine operators. (Arch. Neurol. & Psychiat., Aug. 1953, H. E. Hill and R. E. Belleville)

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X-ray Therapy of Peripheral Tuberculous Lymphadenitis

Peripheral tuberculous lymphadenitis frequently causes greater anxiety than the threat or actual existence of tuberculous pulmonary disease. This is especially true when the adenitis becomes fluctuant and drains. Even though the adenitis is only one manifestation of a systemic tuberculous infection, most patients will not accept the idea that, given enough time, the adenitis will usually regress and heal without direct intervention as the systemic disease improves. Usually, therefore, some form of specific therapy is attempted.

Before streptomycin became available, several forms of therapy were used for tuberculous lymphadenitis. The most common methods of treatment were surgical excision, surgical drainage by needle aspiration or incision, ultraviolet irradiation, and x-ray irradiation.

Treatment of tuberculous lymphadenitis by drainage through an incision or by aspiration is frequently complicated by the formation of chronic draining sinuses. With these methods, the results are not predictable and the healing process may take many months or even years.

Although the advent of streptomycin provided the first real promise of successful therapy, it has become apparent that, because of toxicity and the emergence of drug-resistant tubercle bacilli, the drug has some limitations in the treatment of tuberculosis. Streptomycin should be used in combination with other forms of therapy and in the right case at the right time. Ideally, streptomycin should be used in the treatment of tuberculous lymphadenitis in those patients with concomitant pulmonary or nonpulmonary tuberculosis which requires antimicrobial therapy at that time. The same principles would be applicable to isoniazid and other new drugs. Of the alternative methods available for therapy, the use of x-ray is considered in this report.

This report is based upon the study of 65 patients with tuberculous lymphadenitis who received treatment exclusively with technically adequate dosages of x-ray irradiation.

Of the 65 patients, 29 were male and 36 were female. The youngest patient treated was 2 years old and the oldest was 49 years old. The greatest number of patients, 33, were in the 13- to 19-age group.

The clinical impression of tuberculous lymphadenitis was based upon the presence of painless swelling of the lymph nodes, usually chronic, without evidence of local nontuberculous infection and without clinical or laboratory findings suggestive of other causes of lymphadenopathy.

Thirty-eight patients had other forms of tuberculosis in addition to the clinical picture of lymphadenitis as described above. Thirty-one of these had active pulmonary tuberculosis. These included 1 patient with tuberculous salpingitis and 1 with active Pott's disease in addition to the pulmonary disease. Six patients had associated arrested pulmonary tuberculosis. One of the thirty-eight had tuberculous inguinal lymphadenitis associated with tuberculosis of the knee, without pulmonary tuberculosis.

Twenty-seven patients did not have associated tuberculous infection in other locations. In 4 of these, biopsy and histologic examination of the lesion confirmed the clinical impression of tuberculous etiology. Five patients had positive Mantoux tests as the only additional finding. Eighteen had the previously described clinical picture as the sole basis for diagnosis.

Many of the patients had more than one area involved and treated. The areas sometimes differed with respect to the nature of the lesions and the results of therapy. For the purpose of analysis, each field was considered as a separate unit.

The total number of fields treated was 87. Of these, 79 were cervical and 8 were noncervical. The latter were: draining sinus on the chest wall, 3 fields; draining sinus in the axilla, 3 fields; inguinal draining sinus, 1 field; and enlarged, hard, inguinal nodes, 1 field.

The results of x-ray treatment of 65 patients with tuberculous lymphadenitis representing 87 fields during an 8-year period are described. The techniques varied in some degree but all were of the intermittent, low-dosage variety, the average frequency of treatment being once a week. The over-all results showed a 35% average healing rate when the nodes were hard, and a 63% average healing rate when the nodes were fluctuant with or without drainage. No significant, permanent, deleterious effects of irradiation were noted. (Am. Rev. Tuberc., Aug. 1953, J.N. Aceto, K. Kasuga, and S.S. Sanderson)

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Problems in Ocular Prosthetics

In the authors' clinic the prosthetist and surgeon have been able to work closely together. This cooperative arrangement and the opportunity for a fairly broad experience with a variety of prosthetic problems has fostered an appreciation of the interdependence of the surgeon and technician.

The need for prosthetics may already exist or will exist as the result of an impending surgical procedure. If satisfactory cosmetic results may be added to a physiologically sound operation, the necessary additional surgical steps should be taken. The best possible care should be given while healing takes place. The prosthesis, in any case, should be engineered to the best abilities of the prosthetists, with guidance of the surgeon if necessary. Cosmetically it should create an illusion that the patient's eye is still present and normal (as far as possible). The final result should be comfortable and should protect the health of the socket and adjacent tissues. It should spare the patient all possible emotional discomfort. The best course of care of the socket and prosthesis should be established for each patient. And, finally, the patient should be told that the shape of the prosthesis can and should be adjusted to expected changes in the shape of the socket.

The authors have studied these points individually and as they relate to and affect each other. They are discussed, generally, as they have been observed in several hundred cases during the past 8 years and especially as seen in the records of 128 cases during the past 2 years.

Three factors appear to be beyond control at the present time. One is a product of the age and related physical condition of the patient. Most children can be given comfortable prostheses which fill the sockets and shape the adjacent tissue to normal appearance. They are likely, also, to have somewhat better motility of the prosthesis than those operated at a later age. Beyond 10 or 12 years of age, imperfections in prominence, contour

of the lid margin, depth of the supra-orbital fold, et cetera, occur more commonly, until in senility the majority of persons are extremely difficult to fit satisfactorily. On the other hand, one of the observations which impressed the authors most was the fact that aging had little effect upon the cosmetic appearance of cases which had been operated in childhood, and fitted and refitted properly.

The second factor is trauma preceding surgical enucleation. Obviously, such changes as loss of lid tissue complicate the prosthetic fitting.

The third factor is the unpredictable variations in healing. Some of these variations may be anticipated on the basis of attention to surgical detail. The authors noted that patients with both eyes removed present similar problems on both sides when both operations are performed within a short period of time. And again the same surgeon, operating upon different patients in an age group, can have different results. This may point suspiciously toward differences in tonicity of tissue or differences in the formation and nature of scar tissue in some individuals. In any case, care in the details of surgery must be stressed.

The surgeon's choice of type of operation for eye removal has widened somewhat in recent years. For surgery limited to the globe, there are now 6 different basic procedures in use over the country: (1) Enucleation (simple), (2) enucleation with ball implant, (3) enucleation with muscle cone exposed implant, (4) enucleation with muscle cone buried implant, (5) evisceration (simple), and (6) evisceration with buried implant.

Postoperative care in most of the types of eye surgery discussed is well known to all surgeons. There is a preference for pressure dressings for 5 days following surgery of the integrated or buried muscle cone implants. Also, in these two types it is desirable to use conformers, which are furnished by the manufacturers, until the prosthesis is fitted. The need for the conformer in the buried type is not so much to shape the socket as to protect the lid conjunctiva from the clipped eye lashes and to keep the meibomian glands functioning properly.

The technician has 5 contributions to make to prosthetics. He must "engineer" the shape of the prosthesis to mirror, in as many respects as possible, the form and motility of the patient's remaining eye. He must fill the socket comfortably and in a manner which will assure the health of the tissues. He must create illusions with colorations of the eye which will help hide any remaining form defect. He must create with texture and color the impression of living tissue to the extent that the eye is accepted as the patient's own in spite of other defects which cannot be hidden. He must use all care in the handling of his materials to guarantee the least danger of sensitivity to the plastic and to assure all possible permanence.

Manipulation of the form of the prosthesis to force the lids and other structures into the desired positions is the most important part of the fitting procedure. Many technicians are not well versed in this phase of the work.

Because such is likely to be the case for some time, it would be ideal if the surgeon could offer constructive criticisms on any fitting problems which arise.

Some problems cannot be fully solved in every case. In a few they cannot be solved at all. Both the surgeon and the prosthetist must be prepared to compromise on the final result, if necessary.

It must be emphasized that correction of one fault may reveal another. Correction of the second may reveal a third, and so on. The final result is achieved when the cosmetically most acceptable compromise is reached. (J. Iowa State M. Soc., Aug. 1953, L. Allen, A. E. Braley, and H. Webster)

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Dental Caries Control

It is generally believed by most research workers that dental caries is caused by acids formed as a result of the action of micro-organisms on carbohydrates. The process is characterized by decalcification of the inorganic portion of the tooth and is accompanied or followed by disintegration of the organic matrix. Theoretical considerations and some experimental data indicate that all caries is derived from the diet. Furthermore, the only portion of the diet that may be effective in the caries process is that which is available on the tooth surface after the food is ingested. The acids are formed on the tooth surface, and, if they are not neutralized by the saliva or otherwise destroyed, decalcification of the tooth will proceed.

On this basis it is obvious that in order to control dental caries one must prevent the acid from forming, produce conditions under which the acids will be destroyed before harm results, or make the tooth itself more resistant to the action of the acids. All of the methods that have been successful so far in the restriction of dental caries have conformed to one or more of these fundamental concepts. For example, the use of fluorides and soluble oxalates have been shown either to make the tooth more resistant to acids or to have actually restricted dental caries. The elimination of fermentable carbohydrate from the diet and increasing the natural neutralizing influences of the mouth have been partially successful in the restriction of dental caries.

From theoretical aspects of the problem, one of the most effective ways of preventing dental caries would be by the use of enzyme inhibitors. Insofar as the acids which attack the tooth surface are derived from sugars by enzyme action, one should be able to block the formation of acid by the use of compounds that would inactivate the enzymes concerned. Such compounds as vitamin K, urea, ammonia, and a host of others are known to interrupt the chain of reactions which are necessary for the production of acids. In fact, there are literally hundreds of compounds of this nature which might be classified as enzyme inhibitors or antienzymes. The main difficulty involved,

however, is a practical and effective method of application. It is obvious that, in order for the glycolytic reactions to be inhibited, the enzyme inhibitors must be present at the time the fermentable carbohydrate is present. This means that the inhibitor may be incorporated into the sugar that is ingested; it could be placed in the mouth immediately before, after, or during the consumption of sugar; or it may be fastened to the tooth surface in some manner so that it will be present when sugars are ingested. A compound suitable for incorporation in the sugar at the refinery would be highly desirable, but to date no such compound has been reported in the literature.

It has been noted by many investigators that the carious lesion always occurs under what is commonly called the dental or mucinous plaque. The dental plaque is consistently present on the unclean surfaces of the teeth. It is difficult to remove and by the usual oral hygiene procedures can be cleaned only from those surfaces accessible to the toothbrush. It has been suggested many times that caries could be controlled if the dental plaque could be prevented from accumulating on the tooth surface, or if the dental plaque could be removed completely by means of oral hygiene procedures.

In 1949 it was suggested that if the dental plaque could not be eliminated or modified so as to be harmless it might serve as an agent for the retention of enzyme inhibitors on the tooth surface. The plaque is protein in nature and it is known that various stains will attach themselves to protein. This being the case, one might borrow the concept of chemotherapy from Ehrlich and incorporate an enzyme inhibitor into the molecule of a substance that would attach itself to the plaque. If compounds could be found that would absorb, adsorb, or otherwise attach themselves to the plaque, and at the same time be powerful enzyme inhibitors either in situ or by being gradually released from the plaque, these compounds could be incorporated into an effective therapeutic mouthwash or dentifrice.

Certain characteristics of the compound are desirable. In the first place, it must be effective in the prevention of acid formation from sugar, and it must attach itself to the plaque and should remain active for a period of several hours. It should be relatively nontoxic and it should be colorless. Furthermore, it should not be unpleasant to the taste, and it should be readily available.

When it became apparent that compounds could be found that would become attached to dental plaques and remain after washing with water, it was of interest to determine whether or not the compounds would remain effective in the mouth.

Investigation of several hundred compounds indicated that, although most antiseptics, many aldehydes, ketones, and anionic and cationic detergents, and other types of compounds would prevent the formation of acid in sugar-saliva mixtures, very few would become attached to the plaque and remain active after washing with water.

To date about 10 compounds have been found which will become attached to the plaque material in effective concentrations and resist washing with water. Of these, 3 have been incorporated into dentifrices or mouthwashes and have been tested in vivo. In each case the results have been favorable. Two of these, sodium N-lauroyl sarcosinate and sodium dehydroacetate, are now under test clinically. After 9 months of this clinical test, it was found that both compounds were still effective in blocking acid formation below what has been considered the harmful level. This dividing line is empirical and is based primarily on laboratory evidence. No accurate estimates concerning the effect of these compounds on clinical caries can be made, but it would be interesting to speculate on the possible results. If the dangerous acidity is pH 5.5 and the carious process is an all-or-none proposition, then there should be no appreciable differences in the caries-inhibiting action of the two compounds. However, if this is not the case, they might possibly develop a difference, as one of the compounds depressed the formation of acid to a greater extent.

If it is assumed that acid on the tooth surfaces is the immediate cause of dental caries, then dentifrices or mouthwashes containing sodium N-lauroyl sarcosinate, sodium dehydroacetate, penicillin, and other compounds which behave in the same manner should be truly therapeutic in the prevention of dental caries. (J. Dent. Research, Aug. 1953, L. S. Fosdick, J. C. Calandra, R. Q. Blackwell, and J. H. Burrill)

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Memorandum on Noise Measurement

During the course of the program in noise presented as a part of the United States Navy Fifth Annual Industrial Health Conference, 17-23 April 1953 in Los Angeles, the extreme interest in the noise problem on the part of those in attendance was evidenced by the numerous questions raised. Some questions were of the type not readily answered at that time and a representative from the U. S. Navy Medical Research Laboratory at New London volunteered to supply information which would be of assistance in some of the problems encountered.

The problems in noise which appeared to be of most concern were: (a) Methods of measuring noise levels encountered in working areas and in audiometric testing areas. (b) Lack of information regarding noise limits in working areas and in audiometric testing areas. (c) Lack of information regarding the frequency spectrum of noise. (d) Methods of constructing sound-proofed testing rooms.

This memorandum report has been written in an attempt to supply answers to these questions and more important, to acquaint naval personnel with current publications which could be of assistance in studying and controlling noise conditions. (Medical Research Laboratory, New London, Conn., Memorandum Report 53-11, Project NM 003 041.34, 24 July 1953)

Scientific Papers for
The 1954 Aero-Medical Association Meeting

The Silver Anniversary, or twenty-fifth annual meeting, of the Association will be held at the Statler Hotel, Washington, D.C. on 29, 30, and 31 March 1954. It is hoped that this meeting will be marked by the best scientific presentations in the history of the Association.

In order to firm up the best possible program at an early date, Flight Surgeons who desire to make presentations to the Aero-Medical Association are requested to submit the titles of their papers to Captain C. P. Phoebus (MC) USN, Office of Naval Research (Code 439), Department of the Navy, Washington 25, D.C., as soon as possible. Captain Phoebus is the Navy member of the Scientific Program Committee for the 1954 meeting.

Colonel Robert J. Benford USAF (MC) is the Chairman of the Scientific Program Committee and has indicated that the scientific presentations will be limited to 15 minutes each. In addition, each speaker will be asked to designate a qualified person to discuss his paper. The discussant, who will be listed in the program, will be limited to 3 minutes and should receive a preliminary draft of the paper at least 30 days before the meeting. The various papers will be grouped into related areas on the program after the presentations have been judged acceptable by the committee. (AvMed Div, BuMed)

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Medico-Military Training Program

The second course to provide active duty for training in medico-military matters will be conducted October 12-24, 1953 at the U.S. Naval Medical School, National Naval Medical Center, Bethesda, Md. This course is similar to the one conducted during March 1953 and has been generally acclaimed by those who attended.

The first week of this program will be devoted to the Medical Reserve Program and Medical Department of the Navy in general, presenting recent advances in military medicine and surgery, including aviation, submarine, and field medicine.

The second week will be devoted to the problems likely to be confronted and recommended defensive techniques to be employed by medical and dental officers against bacterial, chemical, and radiological action. The subjects will be presented by speakers of outstanding prominence in their specialties; hence, a most interesting and informative program is assured.

Reserve Medical, Dental, Medical Service, Nurse, and Hospital Corps officers residing in the 1st, 3rd, 4th 5th, 6th, 8th, and 9th Naval Districts and the Potomac River Naval Command who desire to attend this course should submit their request for 14 days training duty to the Commandant's

office at the earliest practicable date. The above-named districts have been assigned a quota for this course.

It is desired to invite reserve personnel's attention to the fact that acceptance of orders to attend this course WILL NOT, in any way, increase the possibility of call to extended active duty. Therefore, personnel concerned are encouraged to take advantage of the opportunity to attend this course. (ResDiv, BuMed)

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Course of Instruction in Submarine Medicine

On October 12, 1953 the next class in submarine and diving medicine will convene. The course consists of two separate periods of instruction: (a) 2-1/2 months' diving training at the Naval School, Deep Sea Diving followed by related medical instruction at the Experimental Diving Unit. Both of these activities are located at the Naval Gun Factory, Washington, D. C. (b) 6 months' instruction at the Submarine School for line officers (January-June 1954 class) supplemented with interfused medical instruction in submarine medicine at the Medical Research Laboratory. Both of these activities are located at the U. S. Naval Submarine Base, New London, Conn. Comfortable BOQ and family quarters are available to students and their families for this period.

The next class will be limited to 6 medical officers of the Regular Navy and Reserve with rank not above Lieutenant Commander. Applicants must be physically qualified in accordance with Arts. 15-29 and 15-30, Manual of the Medical Department and completed standard Form 88 should accompany the application. The service agreement for this course has recently been reduced by BuMed Instruction 1520.3A, dated 22 July 1953.

On completion of training, graduates are generally assigned a 2-year tour of sea duty as staff medical officers to the various submarine squadrons located at Pearl Harbor, San Diego, New London, Norfolk, or Key West or to certain amphibious organizations in Coronado, Calif. and Little Creek, Va. Qualification to wear the submarine medical insignia can be acquired 1 year following graduation upon fulfillment of the requirements of Art. C-7309, BuPers Manual. Subsequent shore duty assignment may or may not include duty at submarine, diving, and medical research activities, or clinical assignments depending upon the desires of the individual and the needs of the Service. During the past 2 years 2 submarine medical officers have received an academic year's course of instruction in atomic medicine in preparation for duty with the forthcoming nuclear submarine program. Most of the submarine medical officer assignments, both afloat and ashore entitle the incumbent to extra compensation in accordance with Arts. A-4302 and 4303, BuPers Manual.

Radical changes in future submarine design, advancing operational developments, and improvements in the techniques of submarine escape, deep sea diving, and underwater demolition activities offer challenging physiological, psychological, and human engineering problems. Toxicological and disease control studies peculiar to the submarine service offer excellent background training for future assignments to industrial medicine, preventive medicine, physiology, and medical research. The duties of a submarine medical officer are by no means confined to these highly specialized problems. The clinical care of submarine personnel and their dependents in well-equipped submarine tenders and bases offer ample general medical and surgical practice with especially good opportunities for clinical specialization in otolaryngology, clinical psychology, and psychiatry.

Application for this course should be made by official correspondence to the Chief of the Bureau of Medicine and Surgery enclosing standard Form 88 and the following service agreement: "I agree to remain on active duty for 9 months following the period of service for which I am currently obligated, or for 18 months following completion of this course, whichever is longer." (SubMedDiv, BuMed)

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From the Note Book

1. Rear Admiral Lamont Pugh, Surgeon General of the Navy, during the period August 26 through September 2, 1953, inspected informally the Navy Medical Department facilities located in the San Diego area, at Barstow, Inyokern, and Monterey, Calif., and at Hawthorne, Nev. (TIO, BuMed)
2. Doctor Howard T. Karsner, Medical Research Advisor to the Surgeon General of the Navy participated in the meetings of the North Carolina Heart Association held Sept 3-4, 1953, at Winston-Salem. Dr. Karsner, on invitation of the Association, will conduct two clinico-pathological conferences and will give a lecture on, "The Pathogenesis of Arteriosclerosis." (TIO, BuMed)
3. A Bureau of Medicine and Surgery scientific exhibit entitled, "Electroencephalography in Combat Head Injuries," was displayed during the Third International Congress of Electroencephalography and Clinical Neurophysiology, Aug 22-23, 1953, at Boston, Mass. (TIO, BuMed)
4. Twenty-four recent graduates of civilian dental schools have accepted Naval Dental Internships. The new Dental Interns have been appointed Lieutenants (junior grade) in the Dental Corps, USNR, and began their training, of 12 months' duration, on July 1, 1953, at naval hospitals approved for intern training by the American Dental Association. (TIO, BuMed)

5. The Legion of Merit with Combat "V" was presented to Commander William E. Ludwick (DC) USN, Head of the Dental Branch, Research Division and Head of the Dental Branch, Biological Sciences Division, Office of Naval Research, on Aug. 4, 1953. Appropriate presentation ceremonies were held in the offices of Rear Admiral C. M. Bolster, Chief of Naval Research, who presented the award. (TIO, BuMed)

6. The Executive Council of the Association of Military Surgeons has voted to submit the name of Captain L. H. Newhouser (MC) USN as joint recipient of the Gorgas Award for 1953.

7. The relative value of electroencephalography, pneumoencephalography, ventriculography, and angiography in the diagnosis of 200 cases of intracranial mass lesions is discussed in the Journal of Neurosurgery, July 1953, F. A. Martin, J. E. Webster, and E. S. Gurdjian.

8. Limitations in the use of gamma globulin in poliomyelitis are discussed in the American Journal of the Medical Sciences, Aug. 1953, W. McD. Hammon.

9. The "MIF" stain preservation technic for the identification of intestinal protozoa is described in the American Journal of Tropical Medicine and Hygiene, July 1953, Capt. J. J. Saper (MC) USN and D. K. Lawless, HMC, USN.

10. Bilateral adrenalectomy has been used in patients whose carcinoma of the prostate gland and symptoms have not been controlled by prostatic surgery, revision of the obstructive vesical neck, estrogens, bilateral orchietomy, with and without deep x-ray therapy. (J. Urol., Aug. 1953, W. J. Baker)

11. A technic of cardiac resuscitation is described in detail including artificial respiration, cardiac massage, intravenous fluids, and blood, drugs, and defibrillation by means of electric shock. (J. A. M. A., 8 Aug. 1953, S. E. Leeds)

12. Developments in the treatment of skin lesions by surgical abrasion are discussed under 3 main groups: traumatic and surgical scars; pitting, secondary to acute dermal infections; and pigmentation, congenital and acquired. (Plastic & Reconstructive Surgery, July 1953, P. C. Iverson)

13. Thirty-one consecutive cases of infants dying suddenly while in apparent good health and with gross necropsy findings insufficient to explain death were studied microscopically. In all cases there were microscopic inflammatory lesions in the upper and lower respiratory tracts. There were

vascular changes in the respiratory tract and other organs. The spleen, lymph nodes, and thymus showed characteristic reaction. The presence of these changes is regarded as evidence that death resulted from a fulminating respiratory disease. (Am. J. Path., July-Aug., 1953, J. Werne and I. Garrow)

14. A study of a group of patients with pulmonary tuberculosis was undertaken to observe the effect of testosterone on the twenty-fourth hour urinary excretion of the 17-ketosteroids and the clinical effects of testosterone. (Am. Rev. Tuberc., Aug. 1953, S. Cohen, B. Hayrabetian, and E. L. Sevringhaus)

15. With the view of contributing to the etiology, diagnosis, treatment, and mortality factors, 116 consecutive cases of intussusception have been reviewed and analyzed. (Arch. Surg., July 1953, D. L. Thurston, J. Holowach, and E. E. McCoy)

16. CDR C. G. Calderwood (MC) USN was recently elected to Fellowship in the American College of Surgeons. The following naval medical officers have recently been certified in their specialties by American Boards: CDR R. A. Phillips (MC) USN, American Board of Clinical Chemistry; CDR A. L. Schultz (MC) USN, American Board of Neurological Surgery; CDR J. L. Yon (MC) USN, American Board of Surgery; LT W. C. Hearin, Jr., (MC) USNR, LT W. C. Pallas (MC) USNR, LT P. R. Rand (MC) USNR, LTJG E. J. Crawford, Jr. (MC) USNR, and LTJG G. J. Geanuracos (MC) USNR, American Board of Obstetrics and Gynecology; LT H. C. MacMillan (MC) USNR and LTJG A. Steward, Jr. (MC) USNR, American Board of Internal Medicine; and LT J. W. Wahl (MC) USNR, American Board of Otolaryngology. (TIO, BuMed)

17. Cases of subacute deltoid bursitis showing calcium deposits were given injections of 1,000 mcg. of vitamin B₁₂ with most encouraging, and in some cases, dramatic, results. (Indust. Med. & Surg., Aug. 1953, I. S. Klemes)

18. A brief outline of the specific use of antibiotics and sulfonamides appears in the University of Michigan Medical Bulletin, July 1953, A. I. Braude.

19. The diagnosis and prevention of bacterial endocarditis is discussed in Circulation, Aug. 1953, A. L. Bloomfield.

20. Two cases of autopsy-proved truncus arteriosus and right aortic arch in which the pulmonary arteries arose directly from a single vessel are reported. (Am. Heart J., Aug. 1953, R. D. Rowe and P. Vlad)

BUMED INSTRUCTION 6260.2

27 July 1953

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

Subj: Water and salt requirements for personnel working in hot environments and hot climates

This instruction provides information on water and salt (sodium chloride) requirements for personnel subjected to high environmental temperatures.

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BUMED NOTICE 6120

28 July 1953

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

Subj: Errors and omissions in physical examinations in the case of applicants for officers' training courses and/or periodic examinations for such programs as the NROTC

Ref: (a) Chap. 15, ManMedDept
(b) BuMed Inst. 6120.2

This notice is promulgated for information and guidance of medical and dental examiners conducting physical examinations in the case of applicants for all officers' training courses.

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BUMED INSTRUCTION 6310.1A

3 Aug 1953

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

Subj: Morbidity Report, MED 6310-2; preparation and submission

This instruction consolidates existing directives and prescribes the procedure for the preparation and submission of Morbidity Report. BuMed C/L 50-79, 51-62, 51-125, 51-131, and BuMed Inst. 6310.1 are cancelled.

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BUMED INSTRUCTION 1321.2

4 Aug 1953

From: Chief, Bureau of Medicine and Surgery
To: Activities Under BuMed Management Control and Financial
Responsibility

Subj: Attendance at meetings of scientific, technical, professional, or
similar organizations

Ref: (a) SecNav Inst. 7200.2
(b) BuPers Inst. 1321.2

This instruction establishes the prerequisites for attendance by military and civilian personnel of the Medical Department of the Navy at meetings of scientific, technical, professional, or similar organizations to comply with the provisions of references (a) and (b). BuMed ltr BuMed-233 L20-1 dated 30 April 1951 and BuMed Inst. 12230.1 are cancelled.

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BUMED INSTRUCTION 6200.6

10 Aug 1953

From: Chief, Bureau of Medicine and Surgery
To: Preventive Medicine Units, and Fleet Epidemic Disease Control
Units

Subj: Monthly Report of Preventive Medicine Activities

This instruction describes a monthly report to be prepared by preventive medicine units and fleet epidemic disease control units. BuMed ltr BuMed-7211 A16/P3-3 of 19 Oct 1949 addressed to Preventive Medicine Units Nos. 2, 3, 4, 5, and 6, is hereby cancelled.

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BUMED INSTRUCTION 6460.3

11 Aug 1953

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

Subj: Tissue homografts, follow-up studies concerning

This instruction promulgates instructions concerning follow-up studies in patients who have received tissue homografts in naval medical facilities.

BUMED NOTICE 1080

13 Aug 1953

From: Chief, Bureau of Medicine and Surgery
To: All Naval Hospitals, Hospital Ships, and Medical Units Functioning
in Hospitals of Other Government Agencies
Subj: Roster Report of the Medical Corps (Med-1080-3)
Ref: (a) Art. 23-32, ManMedDept

This notice is promulgated to invite attention of addressees to discrepancies in the preparation of subject report relative to reporting staff medical officers who are on the sick list.

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PREVENTIVE MEDICINE SECTION

Recent Findings From Studies on Seasickness (Motion Sickness)

A comparison of the duration of the aftersensation following the administration of angular accelerations (cupulometry) was made of normal and seasick-prone persons. The parallel-swing examination was also used.

It appeared that objective abnormalities of the labyrinth were present in every chronically seasick patient investigated with these methods. Only the small group of neurotics in whom the affection is completely psychic in nature forms an exception to this rule. In the chronically seasick, the abnormalities may be of two kinds:

1. Those in whom the duration of the aftersensation following the administration of angular accelerations is particularly long. There are vaso-vegetative reactions in the sense of a rise of the endocranial blood pressure, measured in the central retinal artery after examination on the parallel swing. Persons showing these abnormalities are regarded as the specific seasick. This group comprises about 80% of the total number of seasick.

2. Those in whom there is an uncertainty in the aftersensations, or an unequal sensitivity of the two labyrinths, which the author attributes to a deficiency. These are indications of the existence of a vestibular dysfunction. Persons showing these characteristics are called the unspecific seasick. About 20% belong to this group.

Atropine and dimenhydrinate were found to diminish the duration of the aftersensations centrally while the sensitivity in the peripheral organ remains the same. Atropine was found to decrease the vasolability mentioned; dimenhydrinate either did not influence it or increased it to a slight degree.

The following course of events is postulated: (1) The maculae stimulate the stellate ganglion, which causes a constriction of the endocranial vessels. This becomes manifest in a rise of the endocranial blood pressure. Due to the vascular spasm, the blood supply to the labyrinths is insufficient, resulting in unequal stimuli centrally. (2) These centrally conducted stimuli, together with possible optic and proprioceptive stimuli, cause an overstraining of the aspecific stimulative system (reticular formation), resulting in the nausea syndrome.

The technical methods used in this experiment are set forth in detail. (Acta Oto-Laryngologica, Supplementum CVIII, 1953, G. DeWit, University of Utrecht, The Netherlands and Surgeon Lt. Cdr., Royal Netherlands Naval Reserve)

Venereal Disease Control

Laboratories Now Receiving Specimens for TPI Test

The treponemal immobilization test, also known as the TPI test and the Nelson test, is being performed at the Hawaiian Medical Laboratory, APO 957, c/o Postmaster, San Francisco, Calif. All activities in the Pacific area--including Alaska, the States of California, Oregon, and Washington, and forces afloat--should submit specimens to this laboratory.

All other areas will be served by the TPI Laboratory, Naval Medical School, National Naval Medical Center, Bethesda, Md.

Specimens should be submitted in accordance with the instructions contained in BuMed C/L 51-29 until the forthcoming BuMed instruction dealing with the TPI test is promulgated.

* * * * *

Oral Penicillin Prophylaxis

A review of morbidity reports reveals that of all ships and stations of the U.S. Navy (more than 2,000 activities), 50 demonstrate a definite need for increased emphasis on their venereal disease control program.

The incidence of venereal disease is indicative of the size of the reservoir of infection in the population with whom naval personnel have contact while on liberty, and of failure on the part of those who have been exposed to employ adequate prophylactic measures. This failure is not entirely attributable to the exposed personnel; the command can play an important part by its educational program, and by motivating individuals to protect themselves. Commands should encourage the use of oral penicillin prophylaxis, a proved and effective measure, by making it readily available for the asking, without fear of being punished, directly or indirectly. Almost without exception, ships and stations in foreign areas with high venereal disease rates have failed to practice some of these measures.

The Navy adopted oral penicillin as a prophylaxis against gonorrhea in foreign areas of high incidence only after extensive studies over a period of nearly 4 years, in conjunction with the Subcommittee on Venereal Diseases, Division of Medical Sciences of the National Research Council and with the National Institutes of Health. The Subcommittee on Venereal Diseases of the National Research Council has recommended such use to the Navy and, in fact, has repeatedly urged all the Armed Forces to use it for this purpose in all areas. Some of the points given careful consideration in the studies were:

1. The possibility of producing organisms resistant to penicillin. No evidence has been found to indicate that there has been any significant increase in the number of resistant organisms because of the oral use of this antibiotic, and no resistant strains of gonococci have been identified.

2. The possibility of masking the symptoms of early syphilis. The Subcommittee believes that there is virtually no likelihood of this with the small amount of penicillin used orally for prophylaxis. Careful follow-up of naval personnel who have taken part in the oral penicillin studies has substantiated this belief.

3. The occurrence of reactions to penicillin. During the Navy studies, oral penicillin was found to have relatively few antigenic qualities. From statistical data on reactions to all forms of penicillin, it would appear that as the antibiotic becomes more and more refined and as less antigenic vehicles are employed, the ratio of reactions to the units of penicillin used decreases.

If oral penicillin is made readily available and the men are motivated to its use and assured that there will be no form of punishment for those who report infection, they will be much more likely to protect themselves and the command may achieve dramatic declines in the incidence of venereal disease.

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The printing of this publication has been approved by the Director of the Bureau of the Budget, June 23, 1952.

Industrial Medicine

Exposure to Paint-Stripping Compounds

Paint stripping of naval military aircraft, which must be done whenever the craft come in for major overhaul or the paint film shows signs of corrosion, presents a number of safety and health problems. The primer and lacquer finish must be removed and the metal surface cleaned and prepared for repainting. The paint skin is removed by chemical means. A commonly used paint-stripping compound is formulation 52-R-15 (Aer), which is a thick mixture of complex composition. It contains many toxic and highly irritant ingredients. Of particular significance to the medical officer and the industrial hygienist is the fact that it contains significant amounts of dichloromethane, dichloroethyl ether, phenolics, ammonia, and potassium hydroxide.

The compound is generously applied with brushes to the surfaces to be stripped of paint and is allowed to remain in contact with the paint for about 15 minutes. Then, as the paint film loosens, another coat of stripper is applied and a stream of water is directed at the work while the operator brushes the loose paint and excess stripper downward so that it falls to the deck. At the naval air station reporting the operation, the climate permits the processing of the fuselage and wings out of doors; the smaller components are processed on benches under indoor or semioutdoor conditions.

The vapors generated in the operation are unpleasantly odoriferous and on prolonged exposures are nauseating. Direct contact of the skin with the stripper must be prevented to avoid serious chemical burns. Paint stripper splashed in the eyes, even with immediate medical treatment, produces a burn which is very painful and incapacitating and which heals slowly. The slimy mixture of stripped paint and the stripping compound deposited on the deck is very slippery, and consequently the footing is insecure and there is an ever-present hazard of falls. Because of large amounts of hot water and steam used, the working environment is quite humid.

Some of the measures for the protection of the workers are, of course, obvious. Vaporproof goggles must be supplied, and the wearing of them on the job strictly enforced. Rubber boots, gloves, and coveralls must be provided. To assure firmer footing NAS Alameda has developed a spike-studded sole that is attached to an elastic band so that it can be slipped over the rubber boot. The protective equipment should be frequently inspected for deterioration because the paint stripper attacks and damages rubber. For obvious reasons, there should be available a means for thoroughly drying the protective equipment for the next day's wear.

The problem of establishing safe limits of exposure to various vapors generated during application of the paint stripper is complex. There are present, simultaneously, in the air which the worker breathes:

1. Dichloromethane--maximum allowable concentration given by different authorities as from 200 to 500 p. p. m.
2. Dichloroethyl ether--m. a. c. 10 to 15 p. p. m.
3. Phenols--probable m. a. c. of 5 p. p. m.
4. Ammonia--m. a. c. 100 p. p. m.

Each of these has its own poisonous characteristics and its unique physiological effect on the body. That there is a marked synergism in this combination of vapors is demonstrated by the fact that nausea and loss of appetite, the most frequent complaints, occur when none of the maximum allowable concentrations mentioned are exceeded.

Downdraft ventilation of stripping tables in the indoor shop should be effective in eliminating most of these toxic vapors, and when this ventilation is of sufficiently great capacity it may be applicable to semioutdoor work on pieces of medium size. The greatest exposures, however, occur during the outdoor stripping of fuselage and other large surfaces, and a really practical method of controlling such exposures has yet to be discovered. The use of respirators does reduce exposures, but also reduces the rate of production. The wearing of respirators in addition to other safety gear places the workers under a tremendous handicap, and strict enforcement of this requirement has resulted in an increased labor turnover.

Tuberculosis Control

Tuberculosis Mortality in the United States, 1950

Final 1950 tuberculosis mortality statistics (by residence) are now available from the National Office of Vital Statistics, Public Health Service, for each State and the District of Columbia. The tuberculosis death rates (all forms) ranged from a low of 6.2 per 100,000 population for Wyoming to a high of 59.6 per 100,000 for Arizona.

The over-all geographic pattern of tuberculosis mortality for 1950 resembled that for 1949. The States having highest mortality were confined largely to the South, Southwest, and East while the States with the lowest rates were generally those in the northwestern and north central parts of the country.

The year 1950 completes a decade of striking reductions in the tuberculosis death rate. For the continental United States, the death rate dropped from an average of 45.8 per 100,000 population for the 3-year period 1939-41 to 22.5 in 1950, a decline of 50.9%, whereas in the preceding decade the tuberculosis death rate declined 35.6%.

Although these declines are impressive, the numbers of deaths remain high for a disease whose cause and manner of prevention have been well known for over half a century.

Furthermore, the decline in the annual number of new cases of tuberculosis reported during recent years has been slight compared with the decline in mortality. That the number of newly reported cases remains high, despite the rapid decline in death rates, underscores the fact that efforts to wipe out tuberculosis must continue to have high priority among public health problems. (Pub. Health Rep., June 1953)

Training and Visual Aids

Experimental Use of Health Slogans on Paper Cups

Another channel for the distribution of health information in the Navy is being put into use with the placing of orders for paper cups having health slogans and cartoon-type illustrations printed on the sides. It is believed that this medium of health education will have similar value to the safety-slogan cups which have found wide application in industry.

The initial supply of the printed cups, which are to be in the 7-ounce size, will be used in vending machines in overseas Navy exchanges, vessels of the Military Sea Transportation Service, and vessels being supplied by the naval supply centers at Oakland and Norfolk. The activities receiving the cups have been requested to submit the reactions of patrons and any other information regarding the acceptability of this use of health slogans in order to assist the Bureau of Medicine and Surgery in an evaluation of this experiment. It is planned to use the cups for 1 year before a decision is made to put them into wider use in the Navy or to discontinue them.

General Sanitation

Food Sanitation

LT W. H. Cope (MC) USN, recently assigned to Preventive Medicine Unit No. 2, has sent in these notes of interest to the Navy on the occurrence of food-borne diseases:

Attention is being focused on efforts to decrease the incidence of food-borne diseases throughout the Navy. Such outbreaks of disease are occurring also in civilian communities throughout the country in spite of increasing knowledge of the proper handling of food. It is believed that the great majority of outbreaks are preventable and can be traced to carelessness and improper knowledge concerning sanitary practices. The following summary has been prepared partly from data concerning food- and water-borne disease outbreaks in 1952, reported by C. C. Dauer, M. D., in the Public Health Reports, July 1953.

Sixty-nine disease outbreaks were reported in various units of the Armed Forces in the continental United States in 1952. A total of 3,833 persons were affected. Thirty-seven, or more than half of these outbreaks were classified as food poisoning.

Poultry and eggs were important as sources or vehicles of infection. In 39 outbreaks involving chicken or turkey, Salmonella infection was proved or suspected in a large proportion. Many Salmonella infections throughout the country were also traced to a powdered egg-yolk product. These reports indicate very clearly that fowl and eggs constitute a large reservoir of infection and emphasize the need for more effective measures to prevent transmission of the infection to man.

Laboratory evidence of the presence of staphylococci in food was available in 32 outbreaks of food poisoning. Epidemiological investigations indicated this type of food poisoning in 45 additional outbreaks. Of these 77 outbreaks, cream-filled pastry was involved in 15; ham in 21; poultry in 10; and salads in 10. In 28, or approximately one-third of the 77 outbreaks, lack of refrigeration or inadequate refrigeration was considered to have been an important factor. In 5 of the outbreaks, a food-service worker was found to have an infection on his hand. In 3 a food-service worker had a throat infection, and in 5 food-service procedures were considered to be unsatisfactory.

There was a great increase of typhoid fever cases in the United States during 1952 compared with the preceding year. In 4 instances carriers had prepared food eaten by the persons who became ill. Water was suspected of being the vehicle of infection in 2 outbreaks, but laboratory evidence was lacking. Contaminated well water was shown to be the source of infection in 2 other outbreaks.

A number of severe outbreaks of streptococcal infections were reported. Epidemiological investigations of 1 group of 82 cases which occurred in a hospital indicated that the outbreak was food-borne, but the specific item of food was not identified. A group of 81 cases of streptococcal sore throat was reported among persons who had eaten warmed-over stew. *Streptococcus viridans* was isolated from a purulent discharge from the thumb of the cook and from the throats of the ill persons.

Investigations of food-borne outbreaks of disease in 1952 repeatedly showed that the importance of properly storing and refrigerating food and of food-service workers keeping their hands clean was not fully appreciated. It is apparent that expensive equipment and elaborate procedures do not assure wholesome food. Food stored promptly in the cheapest icebox is less likely to cause illness than food placed in the most elaborate refrigerator after a few hours' exposure at room temperature.

Four items of the greatest importance in the prevention of food poisoning are:

(1) Prepared food should be kept either hot at 140° F. or above, or cold at 50° F. or below. The practice of allowing excessive time for food to

cool to room temperature before refrigerating is not considered to be a safe or necessary procedure. (Preventive Medicine Division suggests that this is dependent upon the size of the container and refrigerating capacity of the storage space. It is suggested that, where large containers (which should never be over 3" deep) of food are involved, they be permitted to cool not more than 30 minutes to an hour before being placed in the refrigerator. Stirring at 15-20 minute intervals will insure cooling throughout the mass of food. This procedure allows for loss of excessive heat prior to refrigeration, but may not necessarily permit reduction to actual room temperature).

(2) All persons engaged in handling food must practice strict personal hygiene. Facilities to permit frequent washing of the hands must be made easily available to these persons.

(3) A daily inspection of all food-service workers must be made by a medical officer or his qualified representative.

(4) During the summer months the preparation of highly perishable foods (cream-filled pastries, chicken or turkey sandwiches, et cetera) should be avoided.

(A summary of food-borne illness outbreaks in the Navy in 1950, 1951, and 1952 will appear in the next Preventive Medicine Section of the Medical News Letter.)

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Symposium on Advanced-Base Water Supply and Sanitation

The Bureau of Yards and Docks is sponsoring a symposium on advanced-base water supply and sanitation, to be held at Port Hueneme, Calif., on 7, 8, and 9 October. The objective of the symposium is to explore and discuss military requirements, problems, and current and future development pertaining to water supply and how it is affected by related field sanitation. Topics tentatively listed for discussion are the military problem, desalting, purification, sanitation, and polar and arid water supply.

Specialists in the field of sanitary engineering from the Army, Navy, Air Force, and industry will be on the program. Among the speakers will be Captain O. L. Burton (MC) USN, Director of the Preventive Medicine Division of the Bureau of Medicine and Surgery; Dr. J. Harrell Morris of Harvard University; Professor E. N. Kemler of the University of Minnesota; Professor W. F. Langlier of the University of California; and Dr. Abel Wolman of Johns Hopkins University. Lieutenant Commander F. E. Stewart (MSC) USN, Head of the Sanitation Section of the Preventive Medicine Division, will demonstrate a kit for testing the pH and chlorine concentration of water, especially adaptable for field use.

It is urged that all interested personnel of the Navy Medical Department plan to attend. The U.S. Naval Civil Engineering Research and Evaluation Laboratory at Port Hueneme will arrange for reservations and transportation from Los Angeles upon request.

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Survival of Organisms in Dressing Made With Dried Eggs

Not all Salmonellae and staphylococci inoculated into cooked salad dressing made with dried eggs are destroyed at the pH of the basic formula, or any palatable variation, but these pH's do not provide a favorable medium for the growth of pathogenic organisms.

"Cooking dried egg in salad dressing for one-half minute or to a temperature of 84° to 86° C. destroys food poisoning organisms which are likely to be found in dried eggs or introduced into them by food handlers." (Public Health Engineering Abstracts, May 1953, in a report on an article by T. C. Kintner and M. Mangel in Food Research, Jan. -Feb. 1953)

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LT. PAUL G. BAMBERG, MC USN
U. S. NAVAL MEDICAL RESEARCH INST.
NATIONAL NAVAL MEDICAL CENTER
BETHESDA, MD.

Permit No. 1048

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