

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 are they, 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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Notice

Due to the shortage of medical officers, the Chief, Bureau of Medicine and Surgery, has recommended, and the Chief of Naval Personnel has concurred, that Reserve Medical Officers now on active duty who desire to submit requests for extension of active duty at their present stations for a period of three months or more will be given favorable consideration. BuPers Instruction 1926. 1B applies.

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Dental Personnel Train for Emergency Care of Mass Casualties

The year 1956 will be marked as the one when the training of Navy dental personnel in the emergency care of mass casualties advanced from the desks and drawing boards of planners to the actual application of a well-balanced educational program.

The big job of caring for the dental ills of Navy personnel occupies all of the time of dental personnel during peacetime. However, during wartime battle conditions, the dental officer must lay aside these important health pursuits to become a partner of the medical officer in caring for battle casualties. Likewise, dental technicians must become members of the casualty treatment team. In every ship where there is a dental department, dental officers and dental technicians will be placed with emergency battle dressing station teams and will be expected to be able to assume the many responsibilities of treatment that may arise. During World War II, dental officers showed that they could assume these lifesaving responsibilities. Indeed, there are instances on record when the dental officer assumed the

entire responsibility of ship casualties when medical officers were among those killed or injured.

Before and during World War II, the training of dental officers in the actual application of lifesaving measures was rather haphazard. A few, of course, had experience in the general operating rooms of hospitals; many others were trained on the spot—i. e., on board ship or at a Marine Corps first aid station by medical officers. The majority had never before been confronted with the many problems of the emergency care of mass casualties. The fact that dental officers performed courageously and well during these initial experiences speaks highly of their professional training and underscores the fact that the basic training of dentistry and medicine are and must be, similar so that in wartime the services of dentists can augment those of physicians. Even in the days of warfare just past, dental personnel assumed a vital role in caring for mass casualties.

But Hiroshima and the more recent developments in nuclear warfare have made the training of dental officers, dental personnel, and all their civilian counterparts an absolute necessity if the minimum casualty needs are to be met should all-out atomic warfare come. No less an authority than Dean Harold Diehl, Chairman of the Council of National Defense, American Medical Association, says: "These and other demands will create a grave shortage of physicians. Dentists, because of their specialized training and experience, may be called upon as leaders of whole sections of emergency medical action. Dentists have an opportunity and an obligation to work with physicians in providing first aid and emergency medical care in the event of an enemy attack or following a natural disaster. It is the primary responsibility of each dentist to be trained in all the techniques of emergency lifesaving measures, the extent of which would vary, depending upon local medical and health resources and the extent of casualties." Since the end of the war the training of dental personnel in first aid has been conducted in all of the six Dental Technician training schools and in the Naval Dental School. However, this training lacked the realisms of actual wartime conditions and, besides, the training was limited to those relatively few personnel in attendance at the schools.

It is not surprising to find a dental officer challenged by the thought of presenting a program with training aids that simulate battle casualties to the point of hair-raising reality. A great part of dentistry is simulating Nature in and about the oral cavity. The dental officer in constructing a denture is working with materials that reproduce missing teeth and oral soft tissues. During the war, dental officers pioneered the construction of the plastic eye and other missing facial and body parts. It was natural that one dental officer should begin thinking in terms of making natural appearing training aids that would simulate battle conditions, thus bringing realism to the classroom where all could see. Captain J. V. Niiranen, DC USN, now on duty at the Naval Dental School, National Naval Medical Center, Bethesda, Md., was

the man to whose mind this idea came. From his talented hand came a series of aids, all of which are now a part of the Navy Dental Corps' Personnel Damage Control Program. The first of these training aids developed by Captain Niiranen was the facsimile arm. In making this arm realistic, rubber tubes for veins were placed in anatomic position under a plastic skin-like covering. Artificial blood, its chemical content so arranged that blood typing could be done, was developed to add to the realism. This training aid was used in teaching needle insertion into veins (venipuncture) when lifesaving blood or blood substitutes had to be administered quickly and easily. This valuable training aid was followed by a series of training aids, all in realistic lifelike plastic developed to simulate injured body areas. These include the facsimile neck and the facsimile abdomen.

All of these individual training aids still lacked the authentic reality of a seriously injured person, so Captain Niiranen undertook the development of an entire facsimile person or manikin. Artistic and technical assistance were given by Mr. William Young, Exhibit Director of the Naval Medical School; Mr. Louis DiValentine, sculptor of New York; and Mr. T. J. Haynes and Mr. Robert Geoghegun of the Rogay Laboratory of Washington, D. C.

The first of these manikins was developed in 1953 for use in the U. S. Naval Dental Corps Casualty Treatment Training Program. It was first exhibited at the annual meeting of the American Dental Association in Cleveland where it was termed "sensational" and won a top award. Mark I, as the manikin was called, traveled 53,000 miles and was one of the outstanding exhibits at 34 dental and medical meetings during which he was seen by more than 300,000 persons. Mark I with realistic wounds spurting blood was so startling that it was not uncommon for some spectators to feel faint—and a few did faint. Captain R. V. Schultz, MC USN, Head of the Audio-Visual Section of the Bureau of Medicine and Surgery, has termed it the most successful exhibit ever developed by that Bureau. Mark I with his successor, the improved Mark II, who has already traveled 10,000 miles to be at four meetings, has been on the road almost constantly. He is bringing to many professional men the stark realism of the seriously injured person and the realization of the training they must have had should nuclear warfare come to this country. Mark II had his TV debut before an estimated 20 million viewers on 15 April 1956, when Captain Niiranen demonstrated its versatility as a training aid on the "You Asked for It" program.

The last development in the attempts for realism came with the development of strap-on wound moulages. A moulage can be made for any part of the body and can be strapped in position on a living person, thus adding another bit of reality. All of these training aids have electrically driven pumps that carry blood into the moulages or the manikin to simulate wounds. Such moulages, developed for use under field conditions, depict the following problems:

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| 1. Head wounds | 8. Venous flow |
| 2. Face wounds | 9. Traumatic amputation |
| 3. Neck wounds | 10. Open arteries |
| 4. Airway problems | 11. Closed arteries |
| 5. Chest wounds | 13. Pressure points |
| 6. Abdominal wounds | 13. Burns |
| 7. Massive arterial flow | 14. Blood volume replacement |

With this array of training aids, the development of an integrated course in Personnel Damage Control became feasible and highly desirable. Accordingly, the Dental Division of the Bureau of Medicine and Surgery directed the development of lecture outlines, slides, and instructors so that this course can be given to all dental personnel. This course will require a total of 35 class hours and will cover the following emergency conditions:

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| 1. Dentistry—an Aid in Disaster | 8. Control of hemorrhage |
| 2. Battle dressing station duty | 9. Fractures |
| 3. Psychological first aid | 10. Cricothyroidotomy |
| 4. Field anesthesia | 11. Resuscitation |
| 5. Head and neck wounds (including maxillo-facial injuries) | 12. Burns |
| 6. Chest wounds | 13. Casualty treatment of shock |
| 7. Abdominal wounds | 14. Parenteral therapy |
| | 15. New medicaments |
| | 16. Dressings, bandages, and splints |
| | 17. Transportation of the injured |
| | 18. Radiation injury |

Training instructors in the presentation of the Personnel Damage Control lectures and in the use and operation of the training aids will be done during a special two weeks' course at the Naval Dental School.

Centers for this training will be established at the Naval Dental School, National Naval Medical Center, Bethesda, Md.; the three Naval Dental Technician Schools at the Naval Training Centers, Bainbridge, Md., Great Lakes, Ill., and San Diego, Calif.; and the U.S. Naval Dental Clinic, Norfolk, Va. Dental personnel from the Atlantic Fleet will obtain this vital training at the Naval Dental Clinic, Norfolk, while the Naval Training Center, San Diego, will train Pacific Fleet dental personnel. With the development of this course at these centers, it is planned to extend this valuable training eventually to Reserve dental officers who reside in or near these training facilities.

The objective of all this training for both Regulars and Reserves is the creation of well-trained dental personnel who will be able to assume their responsibilities in the emergency care of mass casualties. (Captain B. W. Oesterling DC USN, Dental Personnel Train for Emergency Care of Mass Casualties: Naval Training Bulletin, July 1956)

Prophylactic Treatment of Cancer

Two years ago the senior author conceived the idea that, although the chemotherapeutic agents utilized today in the treatment of advanced cancer might not cause any more beneficial effect than improvement in symptoms (perhaps without a significant increase in life span), they might be much more effective from the prophylactic standpoint. Their utilization in a prophylactic way would be dependent upon their use in a very early stage of cancer when the cells do not have a significant vascular "root"; the best example of this stage of cancer would be the dissemination of cancer cells into veins by manipulation of the tumor and into adjacent tissue by contamination as the tumor is removed. It seems obvious that these cancer cells would be much more vulnerable to destruction by chemicals while they are loose and floating and before they acquire a vascular attachment.

The important question is: How often is cancer spread by dissemination of cells during the operation? The profession has known for decades that there is danger of implantation of cells during operation, and evidence of this has given rise to the extreme caution which the surgeon takes not to cut through tumor tissue while performing a radical resection of the breast for cancer. It is surprising, however, that until recently very little attention has been paid to this possibility in carcinoma elsewhere (e. g., colon and rectum). The other pathway of spread during operation is by means of cellular emboli through the veins. Obviously, this would not be apt to occur with very great frequency in tumors which metastasize primarily by lymphatics (e. g., tumor of the oral cavity). However, the majority of the important tumors, (rectum, colon, thyroid, breast, prostate, and so forth) metastasize to a great extent by vein. This point needs little supporting data; metastases to bones, lungs, and liver are examples of this mechanism.

On the basis of favorable results with prophylactic chemotherapy in animal (rat) cancer, and with the knowledge that at operation cancer cells can be disseminated by venous emboli and contamination in the open wound, the authors have started the use of nitrogen mustard in patients having operations for cancer. They have injected it on the day of operation and on three succeeding days except in the occasional patient when toxic effects were noted, or the critical condition of the patient made further injection of nitrogen mustard dangerous. It is used in all tumors such as breast, colon, rectum, stomach, and so forth, which are known to metastasize by vascular channels as well as by lymphatics.

To date, the authors have given nitrogen mustard to about 20 patients, giving the first dose on the day of operation and the remaining three doses on the next three postoperative days except in very poor-risk patients. However, 70 years has been adopted as the maximum age for this treatment, although older patients might safely be given one or two doses.

If the related animal experiments are significant, it might be advisable to give the first dose in patients having an abdominal operation for cancer

into the portal vein. If this were done, however, stray cells in the peritoneal cavity would not have been exposed to the chemical. It is barely possible that all implants on the peritoneum (a few days to a few weeks old), so small that they are not visible to the naked eye, would be killed with the proper agent. It would be more desirable to give one agent into the portal vein and another into the peritoneal cavity on the day of operation. If only one agent were used, the dose would have to be split. It would be more desirable to use two chemicals which were not complementary in toxicity. The authors are working on this problem. Radioactive gold could no doubt be used in conjunction with nitrogen mustard without significant complementary toxic action. (Cruz, E.P., et al., Prophylactic Treatment of Cancer: Surgery, 40: 291-295, August 1956)

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Carcinoid and Serotonin

In the past few years, extraordinary interest has developed around the study of serotonin, or 5-hydroxytryptamine, a derivative of the amino acid, tryptophane, and normally found in cells of the gastrointestinal tract, in the central nervous system, and in the blood platelets.

Serotonin has become familiar to clinicians chiefly for two reasons: its relationship to curious symptoms that sometimes appear in patients having carcinoid and its relationship to certain problems of mental function.

Although carcinoid may occur anywhere in the gastrointestinal tract, this tumor is most frequently discovered in the appendix and in the ileum.

Appendiceal carcinoid is the type best known to clinicians. Apparently, the tumor appears early in human life. As it grows, it encroaches upon the lumen of the appendix or sometimes upon the blood supply of the organ. In either event, the clinical result is the same—manifestations of appendicitis, usually when the patient is in his 20's. Then, when an appendectomy is done, carcinoid is a "surprise" discovery.

Ileal Carcinoid. In contrast to the clinicopathologic story of carcinoid of the appendix, ileal carcinoid has quite a complicated course. The tumor is a small indolent submucosal growth. In about 25% of cases, carcinoids are multiple. The majority of patients never develop clinical manifestations of their disease; it is an incidental finding at laparotomy or at autopsy. Unlike other intestinal neoplasms, carcinoid rarely ulcerates.

Symptoms of ileal carcinoid are related entirely to the mechanical effects of the tumor's growth. The patient—usually in his 50's or 60's—may have symptoms and signs of intestinal obstruction, either acute or intermittent. In other instances, the presence of the tumor is announced by episodes of diarrhea or by chronic vague abdominal discomfort. Loss of weight is sometimes a prominent feature.

The true malignant character of carcinoid is shown by the fact that it does metastasize. The spread is almost always restricted to the abdomen. Metastasis accounts for such findings as hepatomegaly and the development of abdominal masses. Involvement of both ovaries has been known to occur and to have been responsible for amenorrhea.

It is known that cells of the carcinoid are producers of serotonin. When large amounts are produced (usually in the instances of metastasis), a new set of clinico-pathologic features is added to the mechanical effects of the tumor itself. The chief manifestations of such a "functioning" carcinoid include (1) a more severe diarrhea, (2) an extraordinary loss of weight, (3) other evidences of nutritional deficiency, (4) peculiar reactions in the skin (paroxysmal flushing, patchy cyanosis, telangiectasia), (5) disease of the valves of the right side of the heart with congestive heart failure, and (6) episodes of asthma or stridor. Most of these features are explicable in terms of production and release of large amounts of serotonin.

Serotonin is known to stimulate smooth muscle. This property explains the tendency to diarrhea and to asthma or stridor.

The cardiac manifestations of ileal carcinoid are mysterious. Presumably, long-continued action of serotonin somehow causes changes in the endocardium of the pulmonic and tricuspid valves. Valvular deformities appear and chronic congestive heart failure may result.

Another clinical feature of "functioning" carcinoid—psychiatric disorders—has led to interesting speculations about the relationship of serotonin to mental function.

As previously stated, the central nervous system is one of the depots for serotonin. Its function in the brain is not understood, but there are some fragments of information. Some investigators have proposed that certain mental disorders, notably schizophrenia, may be due to abnormal concentrations of serotonin in the central nervous system. Of further interest in that connection, as shown recently, reserpine causes release of serotonin from its depots. Presumably, the tranquilizing influence of reserpine is attributable to its capacity for removing serotonin from brain cells.

These ideas about the mechanism of action of reserpine lend support, however tenuous it may seem at present, to the notion that some mental disorders can be more logically explained in chemical than in psychiatric terms. (Hussey, H. H., Carcinoid and Serotonin: GP, XIV: 80-82, August 1956)

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Aneurysmal Bone Cyst

Aneurysmal bone cyst is a peculiar and somewhat uncommon osseous lesion first described by Jaffe and Lichtenstein in 1942, about which there

still exists a considerable degree of confusion in spite of the well established clinical, radiologic, and pathologic features.

The lesion consists of a cystic cavity, destroying the cortex of a bone eccentrically and lined by a mesh of fibrous tissue and vascular spaces containing liquid nonstagnant blood. In most cases, the amount of tissue is scarce, but the lesion attains a considerable size causing a characteristic blown-out effect into the soft tissues adjacent to the affected bone. This mass, being subperiosteal, appears surrounded by a thin shell of new bone, giving the lesion a rather specific radiologic appearance.

The etiology of aneurysmal bone cyst is still unknown. Jaffe and Lichtenstein agree that there is an underlying localized vascular condition which results in marked increase in venous pressure in a segment of a bone, accounting for the destruction that results, and that, as the lesion progresses and enlarges, an attempt at repair is made, thus producing the rim of periosteal new bone and the production of giant cells and fibrous tissue.

Aneurysmal bone cyst is found more frequently in infants, children, and young adults. The majority occur between the ages of 10 and 20 years. Sex appears to play no part in this condition, the incidence being about equal for both sexes.

While examples have been reported in nearly every bone in the skeleton, the lesion shows a marked predilection for the long bones and the vertebrae which together account for 75% of the cases.

The symptoms are usually insidious and of several months' duration, consisting of mild pain slightly aggravated by activity and progressive swelling. If the lesion is located near a joint, some disability and impairment of function may be present; if superficially located, the patient may be aware of a hard mass attached to a bone which gradually increases in size. There is no pulsation or palpation. When the vertebrae are involved, there may be signs and symptoms of cord or root pressure ranging from mild paresthesia to a severe degree of paralysis. Because of the insidious nature of this lesion, it has usually attained a considerable size by the time medical advice is sought. Pathologic fracture may occur as in the majority of other lytic bone lesions, but it has been mentioned only once in the cases reported in the literature.

When the lesion is located in the long bones, it presents its most characteristic features. It generally affects the proximal or distal diaphysis. It seldom involves the epiphysis, except secondarily in neglected cases. It presents a cystic cavity destroying the cortex, as evidenced by the fuzziness of the contour and lack of continuity. This condition is associated with an expansile denser-than-water mass which protrudes eccentrically into the adjacent soft tissues. The rim of this mass is lined by a shell of periosteal new bone measuring a few millimeters in thickness. This is the typical so-called blown-out pattern of which there may be several variants. For example, even in the long bones, cases have been observed in which the lesion

was more or less central and had caused a fusiform expansion of the bone with destruction of the cortex on both sides. In the vertebral column, any portion including the sacrum may be affected. The lesion may be seen destroying the spinous process, the neural arch, or the body of one or several adjacent vertebrae. In this location, as in the flat bones, the appearance of the lesion may be modified to a certain extent by the local anatomy, but there is usually enough of a soft tissue shadow with its characteristic bone rim extruding into the adjacent tissues to permit accurate diagnosis in most instances.

Roentgenologically, the process might occasionally be mistaken for juvenile bone cyst because the location and age group distribution are similar. When the lesion is bulky and there is enough spontaneous attempt at repair, some trabeculation and "soap-bubble" appearance may be present, thus simulating the roentgenologic appearance of a giant cell tumor. However, in the latter condition, the trabeculation is as a rule more uniform, the location is mainly epiphyseal, and these tumors do not occur in children. Also, giant cell tumors are extremely rare in the vertebrae—one of the favored locations for aneurysmal bone cysts. Nonosteogenic fibroma may at times be a cause of confusion, but it lacks the soft tissue mass and the blown-out effect. Another condition, which has been reported as simulating aneurysmal bone cyst, is the telangiectatic form of osteogenic sarcoma, and mistakes in diagnosis have resulted in unnecessary amputations.

Aneurysmal bone cyst is a well defined lesion of unknown etiology and relatively benign course. There is sufficient evidence to support the theory that it may not be a true neoplasm and that it is definitely not a traumatically induced hematoma. The lesion is often mistaken for giant cell tumor, and less frequently for juvenile bone cyst or bone angioma. The main practical consideration is to distinguish it from the telangiectatic type of osteogenic sarcoma and thus avoid unnecessary amputation.

The treatment of choice is: surgical eradication by curettage complemented by bone graft when necessary. Roentgen therapy should be reserved for surgically inaccessible lesions. Delay in treatment may result in severe damage to bones, joints, and soft parts, and may eventually necessitate amputation. The authors have not observed any cases of spontaneous regression and there are no well documented examples of it in literature. (Cruz, M., Coley, B. L., Aneurysmal Bone Cyst: Surg. Gynec. & Obst., 103: 67-77, July 1956)

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

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Chronic Liver Disease in Young Women

In 1951, two short reports from the laboratory of the Rockefeller Hospital called attention to a group of patients suffering from a rather unusual form of cirrhosis of the liver. These patients, predominantly young women, were considered together because they exhibited certain clinical and biochemical characteristics which were not ordinarily seen in cases of either classic post-hepatitis cirrhosis or Laennec's cirrhosis. Subsequent experience at this hospital during the past 5 years has revealed that the majority of young adults with evidence of severe hepatic cirrhosis, and in whom no alcoholic or nutritional etiology was apparent, have also been women. Some of these patients gave a history suggestive of acute hepatitis, a few were shown to be suffering from Wilson's disease, and, occasionally, other rare but recognizable disorders have been encountered. In the majority of cases, however, the etiologic agent responsible for the hepatic cirrhosis has remained obscure.

The patients included in the present report represent all the young adults with severe cirrhosis of the liver observed at the Rockefeller Hospital with the exception of those cases with clearly discernible etiologic factors. Seven of the twenty-six cases considered in this report were included because, although a previous attack of atypical acute hepatitis appeared possible, they shared with other members of the group certain unusual features not commonly encountered in classic post-hepatitis cirrhosis, for example, arthritis and amenorrhea. Further medical inquiry into the previous medical history of the remaining nineteen cases was singularly unproductive. The onset of the illness was usually insidious and was unheralded by any gastrointestinal disturbances commonly seen in the early stages of acute hepatitis. It should be emphasized that the decision whether to include certain persons within the main group proved at times extremely difficult; this difficulty was further enhanced by the inherent uncertainties in the diagnosis of acute viral hepatitis.

Although the patients described exhibited in varying degrees many of the signs and symptoms common to chronic liver disease due to a variety of causes, only those symptoms and signs which differentiate this group of patients from the more common types of cirrhosis are discussed in detail. A summary of the more pertinent clinical findings is given in a table.

The predominance of women was striking; only three of the twenty-six patients were men (11.5%). There was no convincing racial or ethnic predominance; however, the numbers studied were too small for any dogmatic assertions on these points. The youngest patient in whom symptoms relating to liver disease were noted was a female child aged 3; the oldest subject in this series was a woman of 33 years. The average age of onset was 15 years, with twenty of the twenty-six cases (76.9%) first displaying symptoms between the ages of 10 and 20.

Delayed menstruation or amenorrhea prior to, or coincident with, the onset of symptoms occurred in fifteen of the twenty-three women; in an additional five cases, various degrees of amenorrhea developed during the course of the disease. Onset of the disease at, or near, the time of puberty (between the ages of 12 and 16) was noted in fourteen of the twenty-three female patients.

In two patients, a rapid increase in weight in the year preceding recognition of the liver disease had led to the administration of thyroid hormone by the attending physician. The start of the illness was typically gradual. Exertional fatigue and lassitude were common early symptoms. The insidious onset of symptomless jaundice was frequently the first indication that the liver was affected by the disease process. More rarely, severe and persistent bleeding of the gums and frequent epistaxis prompted hematologic investigations which in turn led to the suspicion of hepatic disease. Obscure febrile episodes associated with joint pains occurred as early symptoms in a few cases. More commonly, arthralgia, when present, developed during the course of the disease. Characteristically, and in marked contrast to the usual cases of Laennec's cirrhosis, the patients were frequently well nourished and indeed in some cases were somewhat overweight. Evidence of severe cirrhosis was usually found at the time of the first examination by the physician and was revealed either by clinical examination or, with more certainty, from a study of the liver function tests.

In addition to the presence of amenorrhea, on rare occasions, acne, hirsutism, pigmented striae, obesity, and moon facies were early symptoms and were noted before the onset of overt jaundice or the recognition of liver disease. These symptoms were somewhat reminiscent of those seen in patients with Cushing's syndrome. However, in contrast to most cases of Cushing's syndrome, hypertension and osteoporosis were conspicuous by their absence. In some instances, transient rashes similar to those seen in erythema multiforme were seen early in the course of the disease.

The well nourished and relatively healthy appearance of these patients belied the seriousness of their disease. As the disease progressed, the classic signs of hepatic cirrhosis, which in most patients were clearly recognizable early in the disease, became increasingly apparent. Variation in the size of the liver was noted in some patients. The spleen was usually considerably enlarged and was frequently palpable at the earliest recognizable stage of the disease. In some patients, splenomegaly was the most strikingly abnormal clinical finding and occasionally the enlargement of this organ was very great indeed. Variation in the size of the spleen during the course of the disease was a frequent occurrence.

Varices demonstrable radiographically were present in twelve of the twenty-six cases and overt esophageal hemorrhage occurred in eleven. In ten patients, obscure febrile episodes—sometimes associated with respiratory or cardiac symptoms—occurred at some time during the course of the

disease. Numerous blood cultures were performed in an attempt to isolate a bacterium, but in no case was a positive blood culture obtained.

A surprising number of patients (eleven of the twenty-six, or 42%) complained of joint pains of varying severity. These symptoms usually occurred early in the course of the illness and in some instances were accompanied by an acute nonbacterial febrile episode associated with a temporary exacerbation of the liver disease.

Death from the disease within 10 years of onset was the rule, but many patients led active and useful lives for a longer period. Death was predominantly due to either esophageal hemorrhage or progressive hepatic coma. In most instances, death resulted from a combination of factors and the terminal episode was frequently precipitated by an intercurrent infection. Thus far, twelve of twenty-five patients have died as a direct result of the disease process. The average duration of the disease in those who have already died was about 7 years (range, 3 to 20). The mean duration of the disease in those still living (November 1, 1955) is 5 - 1/2 years (range, 1 to 12).

In this review, attention is drawn to a group of patients suffering from a severe form of hepatic cirrhosis, the majority of whom were young women. Certain features not usually observed in patients with Laennec's cirrhosis were commonly seen. These features included arthritis, obscure febrile episodes, and occasionally, hormonal disturbances. Striking improvement followed the use of cortisone in some cases. Laboratory investigations in the acute stages of the disease usually revealed an extremely high serum gamma globulin and an increase in the plasma cells of the liver.

The possibility that specific endocrine influences, present in young women, modify the usual course of infectious hepatitis is discussed. In most of the patients, the etiology of the disease process was uncertain. (Bearn, A.G., Kunkel, H.G., Slater, R.J., *The Problem of Chronic Liver Disease in Young Women: Am. J. Med.*, XXI: 3-14, July 1956)

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Myocardial Infarction Treated by Early Ambulation

Since the summer of 1952, patients with myocardial infarction at the Medical Clinic of the University of Turku have been prescribed shorter and less strict bed rest than previously. Immediately after the state of shock has subsided, the patients have been permitted to sit up in the bed. Bedside toilet privileges have also been allowed at an early stage. Two weeks after infarction, if no special contraindications are present, the patients have been allowed to begin ambulation. One week later they have been dismissed from the hospital. In addition to the usual medical treatment, all of the patients were administered phenylindanedione as an anticoagulant.

The experiences of the authors with this treatment during the past three years have been favorable. Their impression is that the patients maintained their physical condition better and regained their normal activity considerably sooner than patients under the old regime of prolonged bed rest. The early ambulation does not appear to have been of any immediate harm to the patient. In order to better evaluate the results of their therapy, they have reviewed the cases of myocardial infarction treated in their clinic in the latter half of 1952 and during 1953 and 1954.

During the stated period, 332 patients with definite myocardial infarction were treated in this clinic. Seventy-four patients, equivalent to 22.4% of the series, died during bed rest before ambulation was started. The survey covers the remaining 258 patients. There were 74 female patients (28.7%). The mean age of the female patients was 63 years, of the male patients, 54 years, and of the total series, 57 years.

From the results reported, it is apparent that no immediate hazard to the patient is associated with ambulation after a bed rest of only two weeks. No deaths occurred among the patients in this series who were allowed to start ambulation two weeks after onset of the infarction, for both of the patients who died in the hospital during ambulation had been confined to bed for a longer time. For comparison, it may be mentioned that, in the series of 242 cases reported from Sweden by Eckerström, which probably is best comparable with the present series, there were 17 deaths during the third week of bed rest in the hospital. The total mortality in this series during the first 6 months from the beginning of ambulation is also fairly small (22 deaths), this figure in Eckerström's series being 44. It is to be observed however, that the mortality in the present series of 74 deaths during 2 weeks of bed rest was also definitely lower than the 110 deaths in Eckerström's series. (Brummer, P., Linko, E., Kasanen, A., Myocardial Infarction Treated by Early Ambulation: *Am. Heart J.*, 52: 269-271, August 1956)

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Suggestions and Recommendations

In an effort to provide the highest quality of professional care in an environment that is both pleasing and compatible, several of our naval hospitals have encouraged patients to record their suggestions and recommendations in this regard at the time of their discharge from the hospital. The following is an example of the type of letter used by a Commanding Officer to solicit information from each new patient:

Dear -----

Your doctor has informed me that you are now, or are about to be a patient in this hospital. We hope that the disability which brought you

in will be completely cured, and that your stay in the hospital will be as pleasant as possible as well as beneficial.

In the belief that physical comfort is often as important as medicine in your treatment, we are constantly looking for ways to increase your sense of well-being and your happiness while a patient. To help us attain this end, we would appreciate very much your comments, suggestions or constructive criticism as to service, equipment, meals, accommodations, or other conditions brought to your attention. Please use the rest of this paper for your ideas and send it along to me. Your nurse will provide an envelope if you wish one. Your signature is desirable but not necessary.

Commanding Officer

(ProfDiv, BuMed)

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Selection of Candidates for UDU

The problems encountered in the selection of applicants for Submarine School as outlined in the article in Medical News Letter, Volume 28, Number 2, have also been encountered in candidates for Underwater Demolition Unit training. The following article from PhibLant Information Bulletin of 1 July 1956 is reproduced so that it may receive greater dissemination to the Medical officers initially responsible for insuring that these candidates meet the physical and psychological requirements.

There is usually an attrition rate of about 70% among trainees in the UDT Basic Replacement Training Course, Course B. 11, Naval Beach Group School, Naval Amphibious Training Unit, Naval Amphibious Base, Little Creek, Va. The result is unnecessary expense to government, great inconvenience to many commands, and embarrassment to individuals who fail to complete the course. This article will provide information to assist officers concerned with processing and screening applications from enlisted personnel and junior officers for UDT training. By selecting more suitable persons for training, the high attrition rate may be decreased and waste of time and money minimized.

The procedures for processing applications are promulgated by Com-ServLant Instruction 1510.4B, and periodic calls for submission of applications for this highly rigorous training are issued through ComServLant Notices in the 1510 series, usually twice annually, in October and March.

Many men who receive orders on the basis of favorable endorsements report for training in very poor physical condition, often with histories of old injuries easily aggravated by vigorous physical training, insufficient or bad dentures, poor eyesight, poor or minimal swimming ability,

claustrophobia, a latent fear of the water, marginal oxygen tolerance, little or no real motivation to undergo training, or worst of all, with little or no knowledge of what will be expected of them during and after the training course.

Notices and instructions promulgating information about training and calling for applications should be given thorough dissemination, for numerous personal inquiries to the Force Personnel Officer, the training school and the operating teams indicate that this information is not always made available to qualified and motivated individuals.

An officer who has familiarized himself with the demands of UDT training and duty should interview each applicant to insure that he understands what he is applying for, that he is temperamentally stable, and that he is motivated by something stronger than a desire to leave his present command.

Each applicant should be given a thorough physical examination including an oxygen tolerance and pressure test; when a decompression chamber is not available, these tests can be conducted after reporting for training. Candidates should have good night vision and depth perception; it is seldom possible to utilize corrective optics. Good frontal dentures are required in SCUBA diving to hold the mouthpiece of the apparatus. Physical size has little bearing on success in the training except that obese individuals seldom succeed.

A background of experience in athletics, especially contact sports, is very desirable though not a requisite. An applicant should be able to run at a slow jog for at least 10 minutes without undue discomfort. He should be generally at home in the water and should demonstrate an ability to swim easily with any of several strokes and to swim at least one-half mile in open water or the equivalent distance in a pool at a reasonable rate of speed and without undue fatigue. He should be able to surface dive and swim underwater at least the length of an average pool (about 25 yards). There have been men ordered to training who could not swim at all.

Prior to placing a favorable endorsement upon a request, the commanding officer should be satisfied that the applicant is sufficiently motivated, has the requisite physical condition and ability, has nothing apparent in his background to prevent security clearance through National Agency Check, and has an understanding of the requirements of the training. All applications should be forwarded as expeditiously as possible so as to arrive prior to the deadline for submission. If a man has the desire and potential to enter training he should be permitted to do so; every effort will be made to find a suitable replacement for such a man in a general service assignment if his application is endorsed, "relief required."

By giving due consideration to the above items, we can eliminate unnecessary monetary expenditures, administrative work, inconvenience to commands and embarrassment to individuals, while effectively meeting the Amphibious Force need to maintain the operating underwater demolition

teams at full allowance with well qualified personnel. (Submarine Force, U.S. Atlantic Fleet)

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Availability of Wave Hospital Corpsmen

There were 906 Wave Hospital Corpsmen on board in the Navy as a whole at the beginning of Fiscal Year 1956. The average on board count during the year was 848. A total of 380 accessions were recorded during the year; of these, 307 were original enlistments, 33 reenlistments or extensions, 6 transfers from USNR to USN, 18 were USNR volunteering for active duty and 16 changes of rating to the Hospital Corps. The 307 original enlistments of Wave Hospital Corpsmen represent a relatively high percentage of all Waves entering the Naval service.

Losses of Wave Hospital Corpsmen were even greater than the input, primarily because of attrition due to marriage. Losses totaled 402 of which 87 were expiration of enlistments., 277 special order discharges, 3 changes of rating out of the Hospital Corps, 25 USNR releases to inactive duty and 10 invalided from the service or separated for miscellaneous reasons. The turnover of Wave Hospital Corpsmen has been high. At the end of Fiscal Year 1956, a total of 886 remained on board, a net loss of 20.

Distribution of Wave Hospital Corpsmen has been made to major and individual commands on an equitable basis within the needs of the service based upon a policy of utilizing Wave Hospital Corpsmen in duties directly related to care of female patients to the maximum extent possible without depriving them of opportunities for additional training enjoyed by male corpsmen. Distribution has been 63 at sea, 16 on foreign shore duty, and the remainder within the continental shore establishment. Replacement of losses has been on a one-for-one basis when possible. Allowances for Wave Hospital Corpsmen have not been established for individual commands by the Bureau of Naval Personnel; they are included with the total allowance which may be filled by either male or female corpsmen.

The outlook for Fiscal Year 1957, relative to the availability of Wave Hospital Corpsmen, is similar to the experience of Fiscal Year 1956.

(PersDiv, BuMed)

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Change of Address

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

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From the Note Book

1. Rear Admiral I. L. V. Norman, MC USN, representing the Bureau of Medicine and Surgery, accompanied Dr. E. H. Cushing, Deputy Assistant Secretary of Defense (Health and Medical), on a visit to the various naval activities and medical facilities in Newfoundland and northern New England. (TIO, BuMed)
2. Captain M. A. Godinez, MC USN, Chief of the Obstetrics and Gynecology Service, U. S. Naval Hospital, Chelsea, Mass., was recently appointed Assistant Professor of Obstetrics and Gynecology at the Boston University School of Medicine, Boston. (TIO, BuMed)
3. LCDR L. A. Jachowski, MSC USN, presided as Chairman of the Symposium on Entomology of Filarial Infections at the Tenth International congress of Entomology, held at Montreal, August 17 - 25, 1956. (TIO, BuMed)
4. CDR A. A. Tratar, Jr., MC USN represented the Navy Medical Department and participated in discussions concerning amputees at the Second International Congress on Physical Medicine, held at Copenhagen, Denmark, August 20 - 24, 1956. (TIO, BuMed)
5. CDR G. G. Clark, MC USN, has been appointed by the Board of Regents of the University of California as Clinical Assistant in Neurological Surgery to the University. (TIO, BuMed)
6. "Planning for the Future" will be the theme of this year's annual convention of the American Hospital Association which will be held at Chicago, Ill., September 17 through the 20th. (TIO, BuMed)
7. Wives of Naval officers attached to commands of the Ninth Naval District located in and around Great Lakes Base organized a volunteer nurses' aid program to assist in the Dependents' Service at the Naval Hospital. The group known as the GLADS, Great Lakes auxiliary in the Dependents' Service, began functioning in April. There have been over 30 volunteers for the program who give a total of 90 hours of service each week. The GLADS assist the doctors, nurses, and the hospital staff members in the work, clinics, and at the admission desk, making it possible for the staff personnel to devote more time to the care of their patients. (USNH, Great Lakes, Ill.)
8. During the months of June, July, and August, there were some 438 Medical officers released to inactive duty, and approximately 559 Medical officers reporting for active duty during the same period. (PersDiv, BuMed)

9. Two recently introduced drugs, Prednisone and BZ-55 (N-sulfa-nilyl-N¹-n-butylurea) facilitate evaluation of patients with transient glycosuria, according to studies at U.S. Naval Hospital, St. Albans, N. Y. Prednisone in doses of 15 mg. six and two hours prior to a standard glucose tolerance test (1.75 gm. of glucose per kilogram of body weight) in patients maintained on a 300 gm. carbohydrate intake for three days prior to the test has provided a more predictable response than the cortisone provocative test of Conn. Prednisone increases glycosuria in renal diabetes without affecting blood sugar levels, and produces a diabetic glucose tolerance curve in patients with latent diabetes mellitus. This drug also decreases glucose tolerance in patients with hepatic disease.

A therapeutic trial of BZ-55 has been helpful in differentiating adult-onset diabetes from so-called juvenile diabetes. There is a significant correlation with insulin sensitivity and hepatic glycogen studies. Patients with a mild adult-onset type of diabetes have had a good response to BZ-55 with satisfactory control of hyperglycemia. Best results were obtained in patients in whom liver injury contributed to carbohydrate intolerance. Toxicity has not been encountered in the group studied although precautions are necessary in view of recorded deaths from sulfonamide sensitivity in patients receiving this preparation. (CDR C. M. Leevy, MC USNR, CAPT G. L. Calvy, MC USN)

10. Few surgeons have had the opportunity to treat a significant number of patients suffering from trauma to the pancreas. A study was undertaken to review the experiences with this lesion in the Baylor University affiliated hospitals where large numbers of patients with abdominal wounds are treated. (Surgery, August 1956; R. J. Culotta, M. D., J. M. Howard, M. D., G. L. Jordan, M. D.)

11. The effect of dicumarol on various factors of blood coagulation was studied in nine patients receiving the drug. The observations indicate that dicumarol does not cause a true hypoprothrombinemia. The production of an altered or abnormal prothrombin by dicumarol is suggested as an explanation for the prolonged Quick prothrombin time. (J. Lab. & Clin. Med., August 1956; J. H. Shanberge, M. D.)

12. The treatment of bulbar poliomyelitis is discussed in Postgrad. Med., August 1956; M. H. Seifert, M. D.

13. This article discusses some of the more important causes of confusion and error that exist concerning pregnancy tests. The tests discussed are the Aschheim-Zondek, Friedman-Lapham, male and female frog and the Frank-Berman. (Am. J. Obst. & Gynec., August 1956, R. L. Berman, B. A.)

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Sears Roebuck Foundation

The Sears Roebuck Foundation Plan of Assistance provides a plan of financial assistance for physicians wishing to establish practices in areas deficient in medical service. The Foundation is a nonprofit corporation organized and endowed by Sears Roebuck and Company to aid in the economic and social improvement of the American community. The Foundation works in cooperation with established agencies, its projects are widely varied and include programs developed for scientific and educational purposes.

The details of this plan and its operation and pertinent other data may be found in the Journals of the American Medical Association: Vol. 159, No. 1, page 37-38, dated 3 September 1955; Vol. 159, No. 10, page 1022, dated 5 November 1955; Vol. 159, No. 15, page 1481, dated 10 December 1955; and Vol. 159, No. 18, page 1759, dated 31 December 1955.

This information is made available for those Medical officers now on active duty who are soon returning to civilian practice and who may have a direct personal interest in this plan.

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BUMED INSTRUCTION 7303.11

10 August 1956

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

Subj: Medical Department funds for naval attaches, chiefs of naval missions and chiefs of Navy sections of military advisory groups

Ref: (a) NavCompt Manual 023304
(b) SecNavInst 7110.2 of 29 Sep 1955 (Notal)
(c) Chapter 20, ManMedDept
(d) NavComptInst 7310.5 of 29 May 1956 (Notal)
(e) NavCompt Manual 026100 to 026115

This directive provides instructions to naval attaches, chiefs of naval missions and chiefs of Navy sections of military advisory groups on the utilization of funds under the appropriation Medical Care, Navy.

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BUMED INSTRUCTION 6600.2

10 August 1956

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

Subj: Dental Service Report, DD Form 477 (Reports Symbol MED 6600-2), by Fleet Aircraft Service Squadrons (and similar fleet units); submission of

Ref: (a) Art. 6-23, ManMed

This instruction reduces clerical procedures required to prepare the subject report when the dental officers of Fleet Aircraft Service Squadrons (and similar fleet units) are performing duties in the dental departments of ships and stations.

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BUMED INSTRUCTION 3150.1

16 August 1956

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

Subj: Technical film reports; procedures for production of

Ref: (a) OpNavInst 3150.6 (Manual of Naval Photography) (Notal)
(b) BuAerInst 3150.5 of 2 Aug 1955, Subj: Production of Technical Film Reports; procedures for (Notal)

This instruction summarizes essential information concerning the production, registry, and utilization of technical film reports.

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BUMED INSTRUCTION 3150.2

16 August 1956

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

Subj: Training films and motion pictures; procedures for production and distribution of

Ref: (a) OpNavInst 3150.6 (Manual of Naval Photography) (Notal)
(b) NavPers 10000 (United States Navy Film Catalog) (Notal)

This instruction summarizes essential information concerning the production, procurement, and distribution of training films and motion pictures for use in the technical training and educational programs for personnel of MD, Navy

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DENTAL**SECTION**

Anniversary Greetings from the Surgeon General

Rear Admiral B. W. Hogan, MC USN, the Surgeon General of the U. S. Navy, has addressed the following letter, dated 22 August 1956, to Rear Admiral R. W. Malone, DC USN, Assistant Chief for Dentistry and Chief, Dental Division, Bureau of Medicine and Surgery:

"My dear Admiral Malone:

On this memorable occasion, the 44th Anniversary of our Navy Dental Corps, I take great pleasure in sending to you and all members of the Regular and Reserve Dental Corps my sincere greetings and good wishes.

The continuous progress made in the Navy Dental Corps under your able leadership and guidance, and the contributions made during the past year; in the modern arts and sciences of dentistry; in the field of ocular prosthesis; in furthering the nationwide Casualty Training Program and in assisting in the development of the Dependent Medicare Bill, have done much in fulfilling the mission of the Medical Department in maintaining the health of not only naval personnel but civilian as well.

Growing from 30 acting assistant dental surgeons authorized in 1912, the Naval Dental Service now numbers almost 5,000 officers and technicians dedicated to their profession and devoted to the Navy. These capable officers and men have been outstanding in their accomplishments and in pursuing their responsibilities in establishing and maintaining the Naval Dental School, the various dental departments, clinics, research facilities, technicians schools and dental services throughout the naval establishment. During two World Wars, the Korean conflict and through the years, many Dental Corps personnel as a result of war or naval service and because of some heroic action died, were decorated or earned some special valor - of these we are especially proud.

Reserve personnel having to leave their civilian pursuits during times of international tension have been brought to active duty to assist in the needs of the Navy; they too have made immeasurable contributions to the Corps. For their record of accomplishment and achievement, both during active and inactive duty, our grateful appreciation.

Looking with bright hopes for a progressive future, and looking back on the past year, I am reminded that it is only through the fine teamwork and combined efforts of all dental personnel that our Navy and Marine Corps has been provided with the exceptionally high standard of dental care that it has received.

Anniversary best wishes,

/s/ B. W. Hogan

B. W. Hogan
Rear Admiral, MC, USN

Rear Admiral R. W. Malone, DC, USN
Assistant Chief for Dentistry
Bureau of Medicine and Surgery
Department of the Navy
Washington 25, D. C."

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Anniversary Observance at the U. S. Naval Dental School

On August 22, 1956, Captain C. W. Schantz, DC USN, the Commanding Officer, and his staff of the U. S. Naval Dental School, honored the 44th Anniversary of the founding of the U. S. Naval Dental Corps with a commemorative program held at 1500. Captain Carl Ostrom, DC USN, of the National Naval Medical Research Institute, Captain K. L. Urban, DC USN, and Captain Charles M. Heck, DC USN, were the principal speakers on this memorable occasion. The event was attended by many high ranking military and prominent civilian members of the medical and dental professions.

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"Operation Build-Up"

The following dental officers have been recently appointed in the Regular Navy Dental Corps:

LCDR Lee P. Sharp
Monmouth, Ill.

LT Lloyd B. Chaisson
P. O. Box 525
South Duxbury, Mass.

LT Neil Clement Demaree
U. S. Marine Corps Recruit
Depot
Parris Island, S. C.
(continued)

LT Paul Edward Farrell
U.S. Naval Dental Clinic
Naval Gun Factory
Washington, D. C.

LT Harry Stickney Riley
U. S. Naval Dental Clinic
Naval Base
Brooklyn, N. Y.

LT Ralph W. Pruden
3329 Avenue M
Fort Worth, Texas

LTJG Thomas Beauregard Reid, Jr.
Univ. of North Carolina
Chapel Hill, N. C.

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MEDICAL RESERVE SECTION

Fourth Naval District Military Medico-Dental Symposium

The Seventh Annual Military Medico-Dental Symposium under the auspices of the Commandant, Fourth Naval District, will be held at the U.S. Naval Hospital, Philadelphia, Pa., 22 - 27 October 1956. The theme of the symposium is "The Medical Aspects of Hemispherical Defense" and the program has been planned to provide the Reserve and Regular Medical Department officer with information regarding current concepts in varied fields of endeavor in the medical and dental services of the Armed Forces. The subjects will be presented by speakers of outstanding prominence in their specialties.

The Chief of Naval Personnel has approved this symposium for the awarding of retirement point credit to eligible Naval Reserve Medical Department officers attending, provided they register with the authorized military representative on hand to record daily attendance. Security clearance is not required. The complete program and full information is available at the District Medical Office, Hdqtrs., Fourth Naval District, U.S. Naval Base, Philadelphia, Pa. Correspondence and inquiries should be forwarded to that address.

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Inactive Reserve Officers Contribute Many Man-Days

In a report submitted to the Surgeon General, the District Medical Officer, Ninth Naval District, furnished the following information: During the quarter ending 30 June 1956, the Ninth Naval District utilized inactive Naval Reserve Medical officers as follows: (1) for examination of Naval

Reserve trainees disembarking at conclusion of training cruises at Chicago, Ill., Milwaukee and Sheboygan, Wis., and Benton Harbor, Mich., 11 man-days; (2) with Marine Officer Procurement Teams at University of Notre Dame and Milwaukee, Wis., 4 man-days; (3) for enlistment physical examinations for activation of Electronics Division, Richland Center, Wis., 8 man-days; (4) as Squadron Medical Officer on training cruise of Great Lakes Training Squadron, 14 man-days; (5) for relief of medical officers on leave, attending conventions or hospitalized from NAS St. Louis, Mo.; NAS Denver, Col., and NOP Forest Park, Ill., 70 man-days. Total: 107 man-days active duty time saved.

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Summer Training Program for Ensign Medical Students

One hundred and eighty-three Ensign (Medical) officers are participating in summer cruises at sixteen Naval Teaching Hospitals and nine Naval Medical Research activities. These trainees are students in medical schools during the regular school term. During the summer months they participate in the 60-day Clinical Clerkship and Research Clerkship Training which is a part of the Navy's Ensign (Medical) program. In addition to receiving the full pay and allowances of their rank, these officers receive excellent on-the-job training commensurate with their professional attainments while serving at either a Naval Hospital or Naval Medical Research activity. These programs begin 1 July of each year and end 30 June of the subsequent year.

Candidates for these programs are screened by the District Commandants. The sixteen teaching hospitals and the number of trainees are:

USNH Portsmouth, N. H. . . . 1	USNH Jacksonville, Fla. 9
USNH Chelsea, Mass. 15	USNH Pensacola, Fla. 10
USNH Newport, R. I. 7	USNH Great Lakes, Ill. 10
USNH St. Albans, N. Y. . . 12	USNH San Diego, Calif. 10
USNH Philadelphia, Pa. . . 24	USNH Camp Pendleton, Calif. 1
USNH Bethesda, Md. 7	USNH Corona, Calif. 1
USNH Portsmouth, Va. . . . 10	USNH Oakland, Calif. 15
USNH Charleston, S. C. . . 9	USNH Bremerton, Wash. . . . 9

The nine Research facilities and number of trainees are:

Naval Medical Research Laboratory, New London, Conn. 6
Aviation Medical Acceleration Laboratory, Johnsville, Pa. 1
Air Crew Equipment Laboratory, Philadelphia, Pa. 3
Naval Experimental Diving Unit, Washington, D. C. 4
Naval Medical Research Institute, Bethesda, Md. 12
Medical Field Research Laboratory, Camp Lejeune, N. C. 1
Naval School of Aviation Medicine, Pensacola, Fla. 1
Naval Medical Research Unit #4, Great Lakes, Ill. 2
Naval Medical Research Unit #1, Berkeley, Calif. 3

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SUBMARINE MEDICINE SECTION



Diving Casualty Case Studies

(Continued from Medical News Letter, 24 August 1956)

The recent growth of the sport of underwater swimming with self-contained underwater breathing apparatus (scuba) has not been accompanied by appropriate appreciation of the associated hazards. When even the professionals become involved, the amateurs have little to lean on for guidance. The following case reports concern service men using various types of scuba in what we may assume was a properly supervised program.

Case No. 4

The diver was using an Aqua-Lung in a scuba diving training exercise. He left the surface at 0857, descended rapidly to 130 feet (approximately), worked back up to 100 feet gradually, swam up to 60 feet, went back to 110 feet, and surfaced directly from that depth at about 0920. He was slightly nauseated on surfacing. Five minutes later he had abdominal pain which rapidly became quite severe. Pain and numbness in the legs developed rapidly and progressed to generalized numbness and paralysis (spastic) from the waist down.

Treatment by recompression was started at 1027. Symptoms had largely cleared up by the time a pressure depth of 100 feet was obtained. Treatment Table 3 was used because of the paralysis indicating CNS involvement. At 2000, examination in the chamber did not reveal any residual symptoms other than questionable weakness of both gastrocnemius muscles and hypesthesia from the level of T-10 down. A day later, all signs and symptoms cleared up.

Comment

This case introduces one of a number of, as yet, unevaluated factors, multilevel diving. Had he come on to the surface from 60 feet, he might have been all right because the Navy standard decompression tables for 130 feet permit 15 minutes of bottom time without any decompression stop.

Whatever decompression he needed, he could have received by swimming up at the standard ascent rate of 25 feet per minute—something close to 5 minutes spent on the way to the surface.

Another element not mentioned above that has a bearing in this case was that the diver had lost most of the previous night's sleep while making frequent trips to the head because of a severe diarrhea. Divers should never conceal recent illnesses from the diving supervisor and medical attendant. Divers who have been ill recently should not be allowed to dive until completely recovered. Diving is strenuous physical exercise in a dangerous environment. There is no place for corner-cutting or cover-up in a proper diving operation.

Case No. 5

This diver was using a closed circuit scuba, breathing oxygen on a night exercise. He and his buddy swam about 150 yards on the surface and then dove. They had gone down only a few feet when one swimmer noticed that his buddy seemed to be confused, behaving oddly, was talking but not making sense, and did not seem to know where he was. The one swimmer took his buddy in tow, took him onto a nearby jetty and took off the face mask. This allowed the victim to breathe fresh air. He rapidly regained his faculties. The only remaining symptom was a non-throbbing frontal headache that persisted for over 12 hours. This man had all these alarming symptoms (and a potentially fatal situation) develop without any early warning symptoms or other abnormal subjective or objective findings. Examination of the equipment revealed a defective carbon dioxide absorbent canister.

Comment

There are two things to consider here: carbon dioxide toxicity and anoxia. It is commonly supposed that a gradual build-up of carbon dioxide will give a recognizable change in pulse rate and respiratory pattern. This is not always the case. The absence of warning symptoms raises the question of anoxia developing because of failure to thoroughly purge the lungs and the equipment before starting the swim. In this case, the diver, an experienced man, was certain he had properly purged the system. In view of this and the known defective carbon dioxide absorbent system, the most logical supposition is that this was a case of carbon dioxide toxicity. This man's commanding officer, widely known for his fearless use of scuba, made the pertinent comment that can never be repeated too often: "The value of the buddy-system cannot be over emphasized. In this incident, it prevented a fatality."

Case No. 6

This swimmer was using the same type of gear as Case No. 5.- a closed circuit scuba breathing oxygen. About three minutes after he surfaced he was noted to be floundering about in an uncoordinated manner. His buddy summoned the pick-up boat and when brought aboard his face was twitching, his arms and legs were stiffened in what was thought to be a convulsive seizure. After a few moments breathing with the mask off he cleared up rapidly.

Comment

Two possibilities may be thought of here, oxygen toxicity or carbon dioxide toxicity. Oxygen toxicity does manifest itself in muscular twitching and convulsions, but only under increased partial pressures of oxygen. Here the man was at the surface and this is the treatment for impending oxygen toxicity. Again, it appears the most logical thing is to regard it as a case of carbon dioxide toxicity. Once again we repeat, "The value of the buddy-system cannot be over emphasized. In this incident it prevented a fatality."

Case No. 7

The swimmer was at 150 feet for 30 minutes using a special open circuit scuba. He swam to the surface at the rate of 60 feet per minute and took decompression stops of 11 minutes at 20 feet, and 18 minutes at 10 feet. He developed pain in the back of the right calf and right knee. Treatment Table 1 was used and cleared up all symptoms.

Comment

The better known equipments were not built by fools. In general, the size of the tanks and their pressure ratings are such that they lead the diver into the zone of no-decompression dives. In this case, it was too rapid an ascent and too short a time at each stop. Moral: Don't tamper with the equipment design unless you know what you are doing. Don't short change the decompression procedure.

Oxygen convulsions—a subject unheard of by many physicians—is a very real thing. An oxygen tolerance test is a requirement in screening applicants for Deep Sea Diving School (Article 15-30 (p) Manual of the Medical Department). Breathing oxygen does not cause convulsions unless it is breathed under conditions which cause a high partial pressure of oxygen. Variations in susceptibility of oxygen poisoning between individuals are considerable; there is also variation in a given individual at different times. Decompression stops near the surface for helium-oxygen diving; use oxygen

breathing to enhance the release of helium from the tissues. At first, the deepest of these stops was at 60 feet. The incidence of oxygen toxicity at this depth forced changing to the 50-foot depth as the deepest oxygen stop. This is the background for requiring an oxygen tolerance test for those who wish to engage in deep sea diving using helium-oxygen mixtures.

Case No. 8

A 28-year old civilian of Filipino extraction was brought by auto to a naval establishment. He had been diving with a rubber mouthpiece attached to a hose which led to a demand regulator attached to a high pressure bottle on the surface. Comment: A great deal of diving can be done with such a jury rig, but any kind of diving must be done with judgment.

On the afternoon of 22 May, he dove to 120 feet for approximately 90 minutes and surfaced without any decompression stops. Ten minutes later he noted pain in the chest and back with difficulty in breathing. Comment: The applicable Navy decompression schedule for such a dive calls for four decompression stops for a total of 130 minutes of decompression. The symptoms suggest the possibility of mediastinal emphysema, but in view of the inadequacy of the decompression, it is much more probable that they represent a case of diver's "chokes." This is the condition where gas dissolved in the blood forms bubbles as a result of inadequate decompression so that the blood is frothy and inadequate respiratory exchange results. In this case, the symptoms subsided in a couple of hours and the diver ignored the matter. A very lucky ignorant diver!

The afternoon of the following day, the diver went down to 120 feet for approximately 60 minutes and again surfaced without decompression stops. This time he had the same symptoms, but more pronounced. Comment: After having a clear-cut case of compressed air disease, he should have avoided another exposure for several days. The appropriate decompression schedule for this second dive calls for three decompression stops for a total of 80 minutes decompression. How lucky can one man be?

The pain subsided a little so he made another dive on 25 May. This time he again went to 120 feet for approximately one hour and did make a decompression stop at 30 feet for an unknown time. Immediately after surfacing (1100 approximately) he had pain in the back of his neck, shoulders, both arms and elbows, very difficult breathing, pain in upper chest and whole backside, the back of his legs and knees, stomach ache, and feeling of abdominal distension. He was placed in a civilian hospital two hours later where he was kept overnight.

The next day (26 May) his bladder was distended. There had been no voiding or defecation in the preceding 24 hours. Treatment was started at 1428 on 26 May. As the pressure depth was increased, the symptoms showed improvement as follows: At 5 feet he experienced partial relief in both elbows. At 20 feet the pain in both elbows subsided, but upon

flexion and hyperextension experienced a slight pain. At 25 feet, he experienced complete relief in both elbows on flexion and hyperextension. At 27 feet the pain in both knees was partially relieved. At 40 feet pain in shoulders was partially relieved. At 90 feet pain in both knees was almost gone. Pain in neck subsided. At 115 feet pain in both knees and back of legs completely subsided on flexion and hyperextension.

At 138 feet pain in chest and neck subsided. Upon reaching 165 feet (1454) experienced complete relief in neck, shoulders, back, arms, elbows, back of legs, both knees and stomach. After 15 minutes (1509) on bottom, pain in chest subsided and breathing wasn't labored. After 20 minutes (1514) at 165 feet patient felt fine. At this time patient voided voluntarily and felt quite relieved. Blood pressure 122/72. At 1516 he began to have labored breathing and felt quite uncomfortable. These symptoms got progressively worse. This was believed to be caused from the heat in the chamber. The temperature at this time was about 125 degrees farenheit. After 30 minutes at 165 feet (1524) he was then started on his decompression on table three (3). The urine retention and labored breathing was thought to be a serious symptom and he was treated as such. At 140 feet he began to breathe easier and was symptom free of pain in affected areas. At 120 feet patient felt fine. Reflexes checked and patient was O.K.

Upon surfacing, after 18 hours and 49 minutes treatment, reflexes were intact and to all appearances the patient was normal. He was turned in for 24 hours for observation and showed no evidence of recurrence. Result: Apparently treated successfully. Comment: This would be regarded as a neglected serious case of decompression sickness (#8424) resulting from inadequate decompression for each of three dives made within a 72-hour period. This is regarded as serious, not because of the pain so much as on the history of symptoms following repeated dives and the urinary retention (regarded as neurologic in origin and suggesting a bubble in the spinal cord).

The aggravation of symptoms at 1516 might have been due to the heat as suggested. It might also have been an indication that the treatment schedule was just barely adequate. If any doubt exists and the patient is not holding his own, the pressure should not be decreased. There was a moment of crucial decision at 1526 when 30 minutes at 165 feet elapsed. Although Treatment Table 3 apparently was adequate, no criticism would have been justified if Treatment Table 4 had been chosen. In several ways it is somewhat surprising that Table 3 was adequate. It takes longer to treat the patient on the longer table, but not as long as it takes to treat a recurrence following a schedule that is inadequate. Attempts to save time often waste time and complicate the picture. Never shortcut decompression.

The problem of heat in a recompression chamber is a very real thing. Heat exhaustion can occur to complicate what often is a confused clinical picture to begin with. The treatment is the same as anywhere else, cold saline and other measures designed to reduce body temperature. Having

the patient in a recompression chamber makes this more difficult, but no different.

The rewritten textbook, Submarine Medicine Practice (NavPers 10838-A) and Diving Manual (NavShips 250-880) are official publications that should be useful and readily available wherever a recompression chamber is located. Better still is to have attended the course of instruction for medical officers given at the Deep Sea Diving School. Inquiries regarding this course of instruction may be addressed to Director, Submarine Division, BuMed.

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Dark Adaptation for Divers

When visibility is zero, it makes no difference to the diver whether he is dark adapted or not since he cannot see anything anyway. In very clear water, dark adaptation on bright days is of no consequence because visibility is very good until extreme depths have been reached. However, the greater part of diving is done under conditions of poor visibility. When this is largely due to the amount of suspended matter in the water, not much can be done about it. However, on overcast days or early morning or twilight, dark adaptation of the diver before his descent will increase effectiveness when he reaches bottom.

To date, no satisfactory method of dark adapting divers has been developed. The diver cannot wear goggles because he cannot take them off after his helmet is put on. Dense inserts to cover the helmet parts do not solve the problem because he has to wear the helmet while standing by. It must be remembered that a brief exposure to light, incandescent bulb, fluorescent tube or daylight can nullify several minutes spent dark adapting. Keeping the eyes closed during such an exposure helps preserve the adaptation, but is not complete protection. Here is a problem field activities can think about. Any suggestions?

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More Attention to Diving Physicals Indicated

Attention is again invited to requirements for selection of candidates for diving training (BuPers Inst. 1500.15 and Article 15-30, Manual of the Medical Dept.) Many students report to the Deep Sea Diving School without a preliminary dive, an interview by a qualified diving officer, or an oxygen tolerance test run at 60 feet for thirty (30) minutes. It has been necessary in several cases to make personnel available for reassignment because they could not successfully tolerate pressure or increased partial pressures of oxygen. Since divers are volunteers, it is important that they discuss this work with their families before volunteering. A few ask to volunteer out of diving after beginning the course because of "family opposition." Attention to these items before forwarding an application for diver training will save the Government money, and the man, time, embarrassment, and inconvenience to his family.



PREVENTIVE MEDICINE SECTION

Botulism—More than the Eye Can See

On Easter Sunday at 1:00 p. m. , a family party of five adults and three children assembled in a private home. They enjoyed a varied and delicious menu which included as a special treat home canned mushrooms in olive oil.

Three members of this family were taken ill the following morning, the first patient about 6:30 a. m. , the second at 7:00 a. m. , and the third at 7:30 a. m. The symptoms were: muscular weakness, double vision, dizziness, and difficulty in speech, vision, swallowing, and respiration.

The first patient died later that night, 30 minutes after admission to the hospital. The second patient died 6 days later. The third recovered after a severe illness and prolonged convalescence. The two other adults felt fatigued and their eyes felt strange during the day after the party. The three children, who did not eat any of the canned mushrooms, were not affected.

This incident was clearly caused by botulinus poisoning. Of the foods examined, the only one found to contain botulinus toxin was the home-canned mushrooms. The hostess had prepared fresh, commercially picked mushrooms by boiling them in water for 10 minutes, and, after draining them, had put them into a jar of olive oil to which was added two or three drops of vinegar and one or two bay leaves. This jar was sealed. One month later, on Easter Sunday, the jar was opened and the mushrooms were served cold without further preparation. Portions of the contents of this same jar were available for laboratory examination and were found to contain type B botulinus toxin.

Botulinus spores are universally present in the soil and contaminate much of the food we use. The spores alone cause no harm when eaten in unprocessed foods. However, when the spores are enclosed for a period in an airtight container, together with nourishment such as is furnished by the less acid canned foods, including vegetables, meats, and some fruits, the spores start to grow. As they germinate and multiply, a soluble and very deadly toxin is formed. It is this toxin—the result of botulinum bacterial growth in an oxygen free environment—which causes lethal effects when ingested. A very small amount of food containing this toxin, even a sip or a small taste, has been known to cause severe illness and death.

Prevention of botulinum poisoning in preserved foods is accomplished by killing any resistant botulinus spores by means of pressure cooking just before sealing. When the container is opened, it is safest to boil home canned foods for 15 minutes before tasting or serving. Thus, any botulinus toxin which may be present will be destroyed by the sustained boiling temperature. (With jams, jellies, and fruits preserved in a heavy sugar syrup, the botulinus organism does not develop. Hence, such preserves do not need additional boiling when taken from their containers.)

The symptoms of botulism usually appear within 18 to 24 hours after the toxin-containing food is eaten. They are: general weakness, lassitude, headache, visual disturbances, and difficulty in talking and swallowing. Constipation and absence of fever are the rule. Early diagnosis and treatment with botulinum antitoxin may be life saving.

Botulism is reportable to the health department upon the first suspicion. Aid from health authorities is indispensable in locating all partakers of the incriminated food, in collecting food and personal specimens, and in analyzing the suspected food eaten. (Dale, M. B., D. P. H., Chief, Division of Acute Communicable Diseases, Los Angeles County Health Department, 23 July 1956)

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A Milkborne Epidemic of Paratyphoid

A recent milkborne epidemic of paratyphoid fever in Lancaster, Pa., has been reported and investigated. While the epidemic was clinically mild, there were 200 frank cases recognized clinically and another 40-50 cases uncovered through the epidemiologic investigation. In the classic milkborne pattern, the age distribution was heavily weighted by youngsters. Most of the local schools were served by the dairy involved.

It is fortunate that reports of this kind are very uncommon in these modern times. However, we must accept this report as a blunt reminder that "it can still happen here," and it will happen again at any time that conditions are right and our guard is down.

The value of local full-time public health supervision was again demonstrated when the district medical director of the Pennsylvania State Health Department in the Lancaster area mobilized and directed the investigation and effected the closure of the involved dairy in less than 48 hours from the time the first cases were reported. Public health nurses, laboratory technicians, sanitarians, a public health veterinarian and a public health educator were all used, with significant contributions from each on the multidisciplined team approach.

Of the many lessons offered by this episode, perhaps the most important one is that the present trend toward "automation" does not necessarily guarantee the degree of protection which is implied. The operation of this

plant, like most other dairy plants, might seem on paper to be a "closed system" and "untouched by human hands." Yet, on detailed review of the plant's operating practice, it was evident that manual adjustments, inspections, and mechanical and design failures were not only possible, but occurred not infrequently. Thus, to human elements which intrude into machine operations we must add the inevitable vulnerability of machines and systems.

Another highlight of this episode is the difficulty of continuous milk sanitation and of the investigation of a milkborne epidemic when there is divided responsibility. In Pennsylvania, milk sanitation is a responsibility of the Department of Agriculture. Laboratory surveillance of milk in Lancaster is a responsibility of the local (part-time) health officer and his staff in the city department of health. When the State Departments of Agriculture and Health undertook to locate the break in the normal protective procedures, the dual authority made that investigation somewhat cumbersome. Also, there was an impossible public relations situation in that, after people became sick, the public demanded and expected action from the health department, yet the authority over the pasteurizing and processing plant where the break occurred belonged to another department. (Editorial, Some Important Lessons from the Lancaster, Pa., Paratyphoid Fever Epidemic: Am. J. Pub. Health, 46: 345-346, March 1956, and other sources)

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New Designation of a Group of Viruses

A certain amount of confusion has been caused in the past few years by lack of uniformity of terminology in reference to a new group of viruses which are related to human respiratory infections and conjunctivitis. The first report of isolation of a member of this group was from human adenoids by Rowe and his associates in 1953, and the designation "adenoid degeneration agent" or "AD agent" was applied. At about the same time, Hilleman isolated several closely related new viruses from Army patients and showed that one of these viruses selected as a prototype was etiologically related to epidemic acute undifferentiated respiratory disease and pneumonitis in new recruits. These were termed "Respiratory illness (RI) agents" and the one most widely studied and publicized was "RI-67." Later, with the identification of other viruses and the completion of extensive research, it became apparent that the "AD" agent, "RI-67," and several other new viruses were all members of a group which shared a number of properties including a common complement-fixing antigen, although the individual strains could be distinguished by neutralization tests. Huebner and his associates, in 1954, proposed the term "Adenoidal-Pharyngeal-Conjunctival (APC)" viruses for the family because they had originally been isolated from adenoids, were

known to cause outbreaks of respiratory illness in which pharyngitis was a prominent symptom, and were also known to cause outbreaks of illness among children in which both pharyngitis and conjunctivitis were prominent features. The simple designation of "APC" viruses has been widely used in the literature, but has not been satisfactory from the standpoint of classification since other names have been applied and since it does not fit a scientific terminology.

In May of 1956, a group of workers most concerned met and coined the new designation of "adenoviruses" for this group of viruses. Individual members will be designated by numbers so that "APC" type 1, or "AD" type 1 will now be "adenovirus type 1"; "APC" type 4, or "RI-67" will now be adenovirus type 4, and so on. There are at present 12 types which have been isolated from humans (the most important of which so far have been types 3, 4, and 7), and for 2 types isolated from simian sources.

Because one type of adenovirus may cause a variety of clinical illnesses, several types may cause similar illnesses, and other agents, as yet unidentified, can be responsible for illnesses which are clinically undistinguishable from those caused by adenoviruses, etiological identification can be made only by laboratory methods. Where the etiology is established, this group of workers has suggested that the diagnostic term of illness be used, followed by etiological identification such as, for example, acute respiratory disease due to adenovirus type 4; pharyngitis or pharyngoconjunctival fever due to adenovirus type 3; follicular conjunctivitis due to adenovirus type 6; keratoconjunctivitis due to adenovirus type 8; or pneumonitis or atypical pneumonia due to adenovirus type 7. This listing should not suggest that these types cause only these clinical syndromes, because type 3 may be responsible for any or all of the clinical pictures outlined, as may other types.

Naval Medical Research Unit No. 4 is at present the only laboratory within the Navy having the capability of large scale study of illnesses in relation to the specific types of viruses. This Unit is carrying on extensive work in this field, including evaluation of vaccines. These studies indicate that adenoviruses are an important cause of illness among Navy recruits and that the vaccine will substantially reduce the problem. So far as is known, none of the Navy diagnostic laboratories have any capability for isolation of the viruses or for serologic confirmation in illnesses believed to be due to these viruses. Army area laboratories are provided with complement fixing antigen which enables them to perform serologic studies for confirmation of the cause of illness as being one of the viruses in the group, but which does not allow identification of the specific virus type. Some Army area laboratories can carry out the neutralization tests necessary for identification of the specific type and are also able to perform virus isolation work.

When laboratory confirmation of infection by these agents is obtained in naval personnel, it is recommended that the system of clinical and etiological diagnosis described above be used. (Enders, J. F., et al., "Adenoviruses": Group Name Proposed for New Respiratory-Tract Viruses: *Science*, 124: 119-120, 20 July 1956)

Reappearance of Mediterranean Fruit Fly in Florida

In 1929, the Florida citrus industry was threatened with near catastrophe when the Mediterranean fruit fly was inadvertently introduced into that state. The female of this fly punctures the skins of fruit to lay her eggs and the maggots that hatch destroy the fruit by their feeding. Upon completion of larval development, the maggots emerge and enter the ground for pupation. From there, the adult flies later emerge. Although, from the economic aspect, citrus fruits are the most important fruits attacked, the Surinam Cherry, the Calamondin, mangoes, peaches, papayas, and many others are attacked with equally disastrous results.

In 1930, the first Florida infestation was completely eliminated after the use of thousands of specially employed personnel and the expenditure of \$7 - 1/2 million.

Today, this pest is once again back in the United States having first been detected on 13 April 1956 in Dade County, Fla. In the relatively short period since that date, a tremendous control operation has been thrown into action with the hope that early and complete eradication can be quickly effected. As in 1929, the first step has been the establishment of quarantine zones about all known affected areas, a program in which the U. S. Navy has been asked to participate by preventing the removal of susceptible kinds of fruit from infested counties via Navy transportation. Hand in hand with quarantine measures has gone the eradication program which consists of applying by aircraft as many as three separate sprays of a recently developed insecticide, malathion, combined with a special yeast which is highly attractive to the adult fruit flies. This control procedure is supplemented by the application of granulated insecticides to the ground beneath infected trees to kill the larvae as they enter the soil and by the fumigation with ethylene dibromide or methyl bromide of all marketable fruit which is to leave a quarantine zone.

As yet, it is too early to determine the outcome of this massive attack against one of man's numerous insect enemies, but it is believed that the many advances in insect control technology since 1929 should make early eradication possible. Meanwhile, the attack provides an excellent study source to those charged with responsibility for the control of insect vectors of disease. (Press Release: U. S. Department of Agriculture, July 1956)

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Disaster Plan - A Test Run

On the night of 25 April, a disaster exercise was held at a university hospital in Washington, D. C. — a simulated explosion in the field house of the university gymnasium. Plans for the exercise had been kept secret. The hospital staff had been informed only that a disaster would be simulated

to test the effectiveness of the disaster plan some time during a specific 2-week period. Second year medical students acted as casualties. Members of the first- and second-year classes of the nursing school played the part of anxious relatives and friends.

The results were most interesting to this reporter, as they pointed out many important details—details of the type which planners usually either overlook or consider unimportant. During the exercise, "insignificant" details which would be typical of a true disaster caused a major disruption of the carefully designed casualty treatment plan. The scene, soon after the arrival of the first casualties, is best described as complete pandemonium.

All observers agreed that Operation Hoya was a great success in that it thoroughly tested the effectiveness of the hospital disaster plan and vividly pointed up its weaknesses. Although, as was anticipated, confusion reigned during the exercise, a remarkable amount of effective work was accomplished by the staff. This observer was particularly impressed with the essential need for inclusion of the following provisions in any casualty plan in order to avoid the weaknesses so graphically illustrated in the trial run:

1. As soon as the hospital is alerted for a disaster, guards should immediately command all entries to route casualties to the screening team and to admit authorized personnel only, thus permitting an orderly flow of traffic.

2. The screening area should be so located as to permit doctors to work without being interrupted by the arrival of new casualties.

3. Plans must be complete for the control of hysterical or psychotic casualties, both wounded and nonwounded, in order to avoid unnecessary confusion.

4. All hospital personnel, including associate and assistant personnel, must know their stations and assignments.

5. Nurses, nurses' aides, and other adjunctive personnel should be utilized to the fullest extent to free the doctors for the more urgent cases and the orderlies for those cases requiring special handling.

6. Areas designated as "emergency treatment areas" should be provided with adequate light to permit thorough diagnoses.

7. After a preliminary screening of patients is completed and casualties have been directed towards treatment areas, a second screening of casualties should be made as they arrive at the treatment area, in order to save much time and confusion. For example: sucking chest wounds and other more serious wounds could be sent to immediate surgery, and less urgent cases, such as amputations, could stand by for a short time.

Observation of the test run leads the author to conclude that such realistic exercises conducted at unscheduled times constitute one of the best possible means of pointing up the exigencies of such an emergency, of

detecting flaws in disaster plans, and of training a hospital staff in disaster procedures. Among the stronger impressions gained by other medical observers during the exercise were: (1) the medical profession has a strong interest in disaster medicine and needs only some definite programming; (2) any paper disaster plan badly needs a trial run in order to find the weak points; and (3) everyone who participates in such an exercise becomes a missionary to the cause. (Gleason, E. H., LCDR MSC USN, PrevMedDiv, BuMed, Disaster Plan—A Test Run: Military Medicine, July 1956, pp. 30-32)

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Medical Examination of Dependents of Civilian
Employees Destined for Spain

OIR Notice 4650 establishes a policy which requires that dependents of civilian employees recruited for service in Spain must present a certificate of health as a condition precedent to authorization of transportation at Government expense. The certificate from a physician must show that the individual is free from any recurrent or chronic disease which would require extended treatment or hospitalization and all expenses incident to obtaining the certificate must be borne by the applicant. The reason for this policy is the limited medical facilities available in Spain.

Navy Medical Department personnel may be called upon to give advice or assistance in connection with this new requirement and should be familiar with the above policy which will be included in NCPI 240.

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New Additions to the List of Navy Standard Pesticides

General Stores Stock List Bulletin of 1 July 1956 lists the following new pest control items:

1. Insect Repellent, Clothing Application. G6840-664-8173. Also known as M-1960, this repellent is recommended for the impregnation of clothing as protection against attacks by mites, fleas, ticks, and mosquitoes.
2. Insecticides, Lindane. Powder form. G6840-242-4217. This powder contains 1% of lindane and is stocked as an alternate item for use in situations where louse resistance to DDT dusting powder has been demonstrated.
3. Insecticide, Methyl Bromide. 22 cc. ampoule. G6840-270-9995. This item has been reinstated as an emergency item for the bag fumigation of clothing from scabies and louse infested individuals.
4. Sprayer, Insecticide, Manually Carried. G3740-171-6359. This is a 2-gallon sprayer suitable for the routine hand application of insecticides.

Bureau of Yards and Docks Directives
Pertinent to Preventive Medicine

The following Bureau of Yards and Docks instructions and notices pertinent to preventive medicine were in effect as of 9 July 1956.

Sanitation

BuDocksInst 4730. 1A	Commercial devices and products; testing, evaluating and/or disseminating of data concerning
BuDocksInst 5450. 19	District Public Works Office, Special Assistant for Sanitation (Code DD-110); outline of functions
BuDocksInst 11012. 18	Building cubage and floor areas; method of computing
Change 1	Same subject
BuDocksInst 11012. 40	Standards and criteria for construction—permanent type administrative facilities
Change 1	Same subject
BuDocksInst 11330. 1A	Water, drinking and culinary, supplying at shore activities
BuDocksInst 11330. 3	Policies for planning and construction of water supply systems at major naval shore activities
BuDocksInst 11330. 4	Ship-to-shore potable water connection facilities
BuDocksInst 11330. 5	Water supply for advanced bases - TP-PL-6
BuDocksInst 11330. 7	Fluoridation of water supplies at naval shore activities
BuDocksInst 11345. 1	Cooperation with civil health authorities on stream pollution abatement; policy regarding
BuDocksInst 11350. 1	Refuse disposal
Change 1	Same subject

Pest and Vector Control

BuDocksInst 6250. 1	Pest control, activities report, use of
BuDocksInst 6250. 3	Insect and rodent control
BuDocksInst 6250. 5	Pest control personnel; certification of
BuDocksInst 12156. 5	District Public Works Office, Pest Control Division (Code DD-600); functions of

Passive Defense

BuDocksInst 3442. 1CH 1	Biological Warfare Defense (Formerly 3402. 1)
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Passive Defense (continued)

BuDocksInst 11080.1

Radiological Recovery of Fixed Military Installations (formerly 11154.1)

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A Good Idea in Mess Sanitation Improvement

Preventive Medicine Unit No. 2 at Norfolk has an interesting item in their "Health Notes" that is worthy of note to all who are striving to improve mess sanitation:

There's one ship in the Atlantic Fleet that gives a monthly prize to the mess cook with the best personal hygiene and who has done the best job in sanitation. The men are appraised for a month by the master-at-arms the commissary officer, and the chief hospital corpsman as the medical department representative. A composite picture is formed on each individual as each is judged on neatness and cleanliness, the type of work he does to improve sanitation in the food-service area, his sanitary food-service techniques, and his personal hygiene. Perhaps this type of program would be a booster to your sanitation program. Give it a try!

Recognition of a job well done is a powerful incentive for stimulating the spirit of competition which, in turn, improves the over all job performance.

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Permit No. 1048

OFFICIAL BUSINESS

WASHINGTON 25, D. C.

DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERYPENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, \$300