

most powerful in this respect, the fats the least effective, and the carbohydrates stand between the two.

(b) *Muscular Work.*—Numerous experiments have shown that the influence of muscular work upon the temperature range is a most powerful one. Since heat production is greatly increased by all kinds of muscular work, its influence upon the temperature range is, briefly stated, that it moves it downward. Near the upper limit of the range we may reach a point where a man may be able to exist while at perfect rest, but where every attempt at work will lead to heat accumulation and heat stroke and other pathological conditions.

(c) *Clothing* influences the temperature range by pushing it a certain number of degrees downward; it has, then, upon it an influence similar to that exerted by eating and muscular work.

The salient points of our subject have now been brought forward as thoroughly, we believe, as the scanty allowance of space will permit. We will simply add the conclusions arrived at by Ranke to a most self-sacrificing set of experiments which he made upon himself and published in the monograph already referred to. They are:

1. The temperature optimum of the European, in moderate clothing, lies between 15° and 18° C. (59°-64.4° F.), providing that the other climatic factors exercise no undue influence at the time.

2. In a climate with an atmospheric temperature between the optimum and 22° C. (72° F.) an increased water evaporation begins to show itself, but no decided influence upon nutrition is yet noted.

3. In a climate of a temperature of 25° C. (77° F.) and on the assumption that other climatic factors are without great influence, a diminished desire for food begins to become manifest; the amount of food taken sinks to that of a man doing very light work.

4. The climatic effect still rising, the amount of food taken sinks below the need of an adult at rest and in a state of hunger. The proteids remain constant, and every further diminution occurs at the expense of fats and carbohydrates.

5. If, against the instinctive diminution in the desire for nourishment, food is forcibly taken in greater amount than is desired, pathological changes in the general health, rises in the temperature, and a decreased resistance to infectious diseases will occur.

6. If, on the other hand, the quantities of food taken are permanently diminished in accordance with the demands of a tropical climate, as is usually the case, a deficient nutrition of the organism is the inevitable result, with all the dangerous consequences that follow in its train.

From these conclusions and from the preceding discussion, the leading principles that must govern the composition of a ration or the diet of a man who has transferred his residence from a temperate to a tropical climate may be easily inferred. The details of it are subjects of special research.

A sea climate is perhaps more nearly a purely solar climate than any land climate can ever be. A solar climate is defined as a climate which would be characteristic of every degree of latitude, if the earth was a mathematically perfect spheroid without unevenness, and had throughout the same composition. This is true at least for the great oceans. Although the value of the total mean thermic effect of the climate, which the seaman is exposed to as long as he confines himself to the limits of his ship, has not yet been determined with scientific accuracy, it may be safely said that that value is less than one found over a corresponding latitude on land. It would most undoubtedly be modified by the ship, especially one of the modern battleships, in which every part has a climate of its own and which must be regarded as a heat-producing body; nevertheless, the total mean effect on deck will be found to be considerably less detrimental than the corresponding shore climate. With the aid of a few thermometers, psychrometers, anemometers and some interest and experience in scientific investigations, this work should present no difficulty. Until

it shall have been done, any expression of opinion on the influence of the climate in which the seaman lives, upon his heat economy, and upon the composition of his ration, would be premature.

IV. RECRUITING.

Recruiting for the navy signifies the separation by a medical officer of the physically fit from the physically unfit, of the mentally sound from the mentally unsound, of good timber from bad timber, for a most serious and important service, the common defence of the land and its people against a danger threatening their commerce and their liberty from the direction of the sea. Every physician in the land should be familiar with the principles and practice of recruiting, and recent experience has demonstrated the fact that every medical man in the country is liable to be called upon to do this duty. Whatever else there may be connected with the process of enlisting a man in the navy or army, the point of gravity in the duty of recruiting lies in the medico-physical examination of the recruit; but to perform this duty properly requires some knowledge as well as practice. We shall be obliged to limit ourselves here to giving a very brief outline of some of the more important principles involved.

To begin with, it is a mistaken notion to presume that any individual with a normal heart and a good pair of lungs must necessarily be a fit candidate for the navy. There are indeed many other points of equal importance which the examiner must keep constantly in mind while scrutinizing a candidate. Besides seeing to special parts in the anatomy of an individual, he must look at the man as a whole. Generally speaking, a fine form symmetrically proportioned, good development, regular features, a good clear eye, a frank and open countenance, convey an impression that is rarely misleading; they form an index to the inner life of the man, usually favorable. On the other hand, asymmetry of face and body, irregular development and features, the stigmata of degeneration, in at least fifty per cent. of the cases are unfavorable in this respect. They would indicate an abnormal deviation from the average, the juvenile offender in the young, the hardened criminal and repeater in the adult. The navy can no longer be considered a reform school for the juvenile offender nor a prison for the cure of the hardened adult criminal. Neither the time nor the training can be given in the service to such objects, however noble, and there are other institutions, maintained by the state, the special function of which is to attend to these duties.

Besides good physique, the man, to be of any real and permanent value to the service, must bring with him right from the start a good will, a high sense of duty and responsibility capable of further training, all of which he must be prepared and willing to maintain during the entire term of service to his country and his flag. This may be aiming high, but many years' experience, both in recruiting and in surveying the unfit, have proved to my satisfaction that the service is not benefited but injured by anything below such a standard.

The British Navy.—The only other navy with which our own can be compared as regards the system of recruiting is the British navy. Although the system of conscription for the army has—until recently at any rate—always been considered in England to be a detestable and insufferable encroachment on individual liberty, sailors have at all times been regarded as bound to serve in the royal navy. If they did not enter the service voluntarily, they were simply pressed into it by the press-gang, often very ruthlessly and cruelly. These press-gangs, commanded by officers, were sent into the ports to seize all available seamen. The man, thus forcibly enlisted, had a small coin (the Queen's shilling) pressed into his hand, and it is from this circumstance that the name press-gang is said to have been derived.

This peculiar method of recruiting the navy, scoring, as it did, all law and humanity, had nevertheless taken such firm root in the habits and modes of thought of the

people of England that, even during the long period of peace after Waterloo, when humanitarian principles were taking a strong hold on all civilized communities, no attempt was made to abolish the press-gang. Down to the middle of the nineteenth century English admirals declared that the press-gang was one of the props of the greatness of England and absolutely indispensable.

By that time public opinion resolutely and persistently objected to this forcible enlistment, so that in 1852 the Admiralty was forced to adopt new methods for the recruiting of seamen for the navy—methods which turned out to be highly beneficial, leading as they did to a thoroughly beneficial reform in the manning of the navy and to a very superior personnel at the same time. The royal navy of Great Britain and the navy of the United States are now both recruited on the voluntary system, while in the continental naval services the system is by conscription.

The average of volunteers has invariably been found superior to that derived from those who were driven into the service either by force or by necessity or who entered for reasons of convenience. So far as the navy of the United States is concerned, its personnel has markedly improved during the last twenty-five years, and the general public is beginning to look upon the naval uniform with both pride and affection instead of as a mark of degradation.

For the details and the nature of the physical examination required in both services, the reader is referred to Appendices I. and II., at the end of this article. Every physician may well be supposed to be familiar with the technique of the examination.

The Recruitment of Officers.—This presents several rather interesting as well as instructive differences in the two services. In the English service, considerable stress is laid upon the circumstance that the young naval candidate possesses a good family origin and connections. Under the more democratic form of government of the United States, this principle of selection does not prevail. Then, again, the promotion to the higher grades of command rank does not proceed by seniority in England as it does in the United States, but by selection.

There is, then, a certain amount of selection at both ends of the line in the British service that does not exist in the United States naval service. Besides, the cadet as well as midshipman in the British service is obliged to defray not only all his private personal expenses but also to pay from fifty to seventy-five pounds a year for his schooling. Thus there is, in addition to the above, a money qualification. In both services alike there is a physical and a competitive mental examination, in both of which the candidate must be successful before he can become a cadet.

Granting that a certain amount of this selection which characterizes the British service as distinct from the United States service is done from motives of interest other than the best of the service, we must perhaps admit that the resulting average, thus carefully selected, may in the end be for a steady and constant improvement of their service after all. Even the least important of the qualifications, the money qualification, may not be altogether without a certain value as a principle of selection. If we regard, for instance, the possession of a certain amount of this world's treasure by the lad's father or other relatives as representing a certain amount of brain power which must have been expended at some time in order to accumulate it, the natural conclusion would be that the boy had inherited a part of this same brain power, in a facultative state, in the same natural way as he will some day inherit the accumulated ancestral possessions. We may, moreover, further assume that early training might do much to divert this power into other channels; in other words, turn the lad into a successful naval officer as his ancestor had proved himself successful in other ways.

In the free and unhampered competition in the civil life of a republic like that of the United States and in the general scramble or struggle of the masses for social pre-

ferment, high official position, professional distinction, or financial betterment, almost any individual will in the end find his level, in accordance with his natural and inherited endowments, his abilities, acquired through education, and the use which he makes of them. The gifted, industrious, physically and mentally fittest will easily rise to the top, while the physically weak and the mentally deficient will, as naturally and according to the same law, gravitate to the bottom of this sea of human life and of the multitude. The process of natural selection in the social sphere of human existence has full sway here.

In naval and military life, in countries where all are supposed to be born equal but are not, and in which selection on the principle of true merit and ability has been found either inconvenient, impracticable, or impossible, where artificial barriers are created and placed in the way of the advancement of organized merit and ability, the results must very naturally be somewhat different. While, perhaps, a high and uniform level of efficiency on the part of the individual members of such a body of men may not be inconsistent with such methods, an extremely dangerous dearth of leaders must, nevertheless, remain the inevitable result of such a system, a dearth most keenly felt at the most inopportune moments of national trials and tribulations.

In view of the above facts and considerations the process known as recruiting, being practically the only generally recognized and accepted method of selecting those who are fit for the service from those who are not, becomes of an importance all the greater. From this viewpoint the physical examination of the recruit, more especially, however, that of the cadet, must appear in an entirely new light and one which, in its far-reaching importance, it would indeed be difficult to exaggerate.

The Significance of Selection by Means of a Physical Examination.—With the aid of a physical examination, as this is understood at the present day, the scientifically trained and practically experienced examiner is able to select, from a given number of candidates, a group not only superior in physique, but also, and at the same time, one superior in mental qualifications to the remainder. He can, moreover, by the same means exclude the criminals, criminaloids, and the degenerates.

It has been shown by a series of observations in different parts of the United States and other countries, made by Porter, Christopher, Hastings, Beyer, and others, that children and youths who have inherited an exceptionally good physique almost invariably also manifest mental qualifications that are likewise superior. All these observations, made by different observers and by means of different methods, have led to such uniform results that the correlation must seem unavoidable to any unprejudiced observer and the application of the principles involved to the process of recruiting follows as a most natural corollary.

A necessary preliminary step to the application of these principles to recruiting is the preparation of tables according to the percentile grade system of Francis Galton from as large a number of subjects as possible and from subjects (men and boys) of as nearly the same type as those with whom the candidates under consideration are to be compared. Such tables may include any number of measurements and tests. While height, weight, and chest circumference must be regarded as absolutely essential, other dimensions are very desirable.

The tables published in "The Growth of United States Naval Cadets," United States Naval Institute No. 74, include a number of tests and measurements in various dimensions; they will, therefore, do good service in the examination of cadets. The adjoining three tables (XXII., XXIII., and XXIV) were made from 6,901 sailormen and boys, and may, consequently, be said to be fairly representative of the physique of that class of people who have at all times applied for enlistment in the naval service. Since, however, the averages must be preponderatingly made up from the descendants of Anglo-Saxon and Teutonic stock, the examiner will still have

their first duty to stop the sources of supply whence they derive their income. To prevent disease and suffering is, nevertheless, the highest function of hygiene and one of the noblest aspirations of modern medicine. If we look upon wars as preventable causes of disease and suffering and of death, it would seem to be one of the functions of naval and military hygiene, not only to modify if not altogether to exterminate bullets, as we are trying to annihilate germs, mosquitoes, and other disease-producing agencies, but also to try to devise means for the final abolition of war itself. The gradual reduction in the calibre and the change in shape of the new small-arm projectile seem to be a step in this direction. In the same sense, arbitration may some day fill a chapter in a work on hygiene, and the great peace conference at The Hague, called into being by the august ruler of all the Russias a few years since, would then constitute, historically speaking, the first great international attempt at promoting the fundamental interests and purposes of naval and military hygiene. War undoubtedly is the greatest and most merciless destroyer of the best there is of human life. The history of every war-like nation usually ends in the extinction of the best of that nation. Greece died because the men who had made her glory had all passed away; leaving none of their kin, they left none of their kind. The Greeks of to-day are the sons of those of whom she could make no use in her conquest of Asia. Indeed there is strong ground for the statement that there was more of the old heroic blood of Hellas in the Turkish army of Edhem Pacha than in the soldiers of King George who fled before them five years ago.

The cause of the fall of Rome has been traced to the extinction of the best of her race through her numerous conquests; only cowards remained and from their brood came forward the new generations, and even Cæsar noted the dire scarcity of real men, and "vir," the real man, became "homo," a mere human being.

"Send me the best you have," said Napoleon; "I want men, not boys." Since the time of the French Revolution and the Napoleonic wars, French skulls may be found piled up in Italy, Austria, Germany, Russia, Egypt, and Spain. They are the skulls of the best men that France had sent into the field. It was only after these were gone that the great general began to call for boys, saying, "A boy will stop a bullet as well as a man," and these died without leaving any offspring. From that time onward the men of the hoe became the fathers of the present men of France. M. Legoyt thinks it will take long periods of peace and plenty before France can recover the tall statures mowed down in the wars of the republic and of the first Empire.

Mr. Arthur Knapp, in his work entitled "Feudal and Modern Japan," says: "It is astonishing to find that after more than six generations, or more than two hundred years of peace in which physical courage has not been demanded, these virile powers in the Japanese should be found unimpaired." The student of history, however, finds that this is just what he would expect, for, in times of peace, there is no slaughter of the strong, no sacrifice of the brave and courageous. It is in accordance with the laws of natural history and is proven by all the records of human history that the nation which has seen the least of war always develops the strongest battalions.

Germany, always systematic and thorough, taking advantage of the lessons taught by scientific research, and, guided by the best principles of the times, guards her men and reduces the waste in war to a minimum, by the strictest attention to scientific hygiene. She is military rather than warlike. In modern times, the greatest loss to Germany has occurred through emigration, not through wars. The tendency of all emigration, whether from country districts into towns in the same country or from one country to another, has always been to weaken those left behind. Ammon has shown, for Germany, by measurements, that the average of those who emigrate is superior to the average of those who stay behind. Quetelet has shown that in some towns of Belgium the average

stature was a little higher than in the country. Dunant found this to hold good with respect to the inhabitants of Geneva as compared with the country people around. Villermé, Manouvrier, and others have shown that the stature of the Parisian conscript is higher by 8 or 9 mm. than that of the men belonging to the rural arrondissement of the Seine. Germany has long since recognized this, and hence her struggle for colonies, the possession of which alone can save her ever-increasing population to her flag. It is want of room and lack of opportunity that drive her sons to foreign shores, not fear of military service!

Holland has become a nation of old men. Her sons have died in the fields of Java, and Batavia alone is said to have one million of Dutch graves. Dutch armies are to-day recruited elsewhere, Holland will not waste any more of her own blood.

"Spain died of empire years ago. She has never really crossed our path, it was only her ghost which walked at Manila and Santiago. The warlike nation of to-day is the decadent one of to-morrow" (David Starr Jordan, *Forum*, 1901).

As long as the physician cannot prevent the occurrence of disease, he will have to continue trying to do his best to cure it; as long as war will continue to recur, a nation will have to face the foe. Since, however, the most skillful physician for the care and treatment of disease will in the end prove the least expensive to the family, so the best sailor and soldier will invariably prove the more remunerative to the state. To bring a war to a speedy and successful termination, a nation must offer as recruits, and be willing to sacrifice, the best she breeds.

Henry G. Beyer.

APPENDIX I. Requirements for Enlistment in the British Navy.—The British navy is enlisted upon the Voluntary System. The seaman must have a good physique, though height, apart from a good development, is considered of no advantage. While no physical examination is required for the mercantile marine, none but promising lads are accepted for the training ships of His Majesty's navy, and persons of whatever age or class found to be laboring under any of the under-mentioned physical defects or deformities are, by Article 1154 of the Admiralty Instructions, 1899, considered unfit for the service:

- (a) A weak constitution, imperfect development, or important malformation or physical weakness, either hereditary or acquired.
- (b) Skin disease, temporary or trivial; extensive marks of cupping, leeching, blistering, or of issues.
- (c) Malformations of the head, deformity from fracture or depression of the bones of the skull, impaired intellect, epilepsy or paralysis or impediment of the speech.
- (d) Blindness or defective vision, imperfect perception of colors, or any chronic disease of the eyes or eyelids.
- (e) Impaired hearing, discharge from or disease of one or both ears.
- (f) Disease of nasal bones or cartilage and nasal polypus.
- (g) Disease of throat, palate, tonsils or mouth; cicatrices of neck, whether from scrofula or from suicidal wounds; unsound teeth or seven teeth missing or defective in persons under seventeen years of age; ten defective or deficient teeth in persons above the age of seventeen.
- (h) Functional or organic disease of the heart or blood-vessels, deformity of chest, phthisis, bronchitis, hæmoptysis, asthma, dyspnoea, chronic cough, or any evidence of lung disease or tendency thereto.
- (i) Undue swelling or distention of the abdomen; disease of liver, spleen or kidneys, hernia or tendency thereto, incontinence of urine, syphilis or gonorrhœa.
- (j) Non-descent of either or both testicles, hydrocele, varicocele, or any other serious defect or malformation of the genital organs.
- (k) Fistula of anus, hemorrhoids, or any disease of stomach and bowels.
- (l) Paralysis, weakness or impaired motion, or deformity of either extremity, including varicosity of veins, especially of the leg, and distortion or malformation of hands, feet, fingers or toes.
- (m) Distortion of spine, of the bones of pelvis, no matter whether from injury or disease, or from constitutional defect.

APPENDIX II. Requirements for Enlistment in the United States Navy.—Briefly stated, the physical requirements for enlistment in the United States navy are as follows: The candidate must be of good physical proportions, and, if accepted, is required to take oath before enlistment that he is not subject to fits and has no concealed diseases. Any of the following conditions are sufficient to cause the rejection of an applicant: Greatly retarded development; feeble constitution, inherited or acquired; permanently impaired general health; depraved condition of general nutrition; liability to any disease; chronic diseases or results of injuries sufficient permanently to impair efficiency—such as weak or disordered intellect; epilepsy or other convulsions within five years; impaired vision or chronic disease of the ears; chronic or offensive nasal catarrh; tumors of the nasal passages or great enlargement of the tonsils; marked impediment of speech; decided indications of liability to pulmonary disease; chronic heart affections; rupture; non-appearance of testicles; dropsy of testicle or cord; stricture, fistula or hemorrhoids; large

varicose veins of lower limbs, scrotum or cord; chronic ulcers; cutaneous and communicable diseases; unnatural curvature of the spine; wryneck or other deformity; permanent disability of either of the extremities or articulation from any cause; defective teeth; the loss or extensive caries of four molar teeth.

In addition to the above, candidates for enlistment as apprentice must at least fulfill the requirements of the following table of minimum measurements:

Age in years.	Minimum height.	Minimum weight.	Minimum chest circumference.
14	4 feet 9 inches.	70 pounds.	26 inches.
15	4 feet 11 inches.	80 pounds.	27 inches.
16	5 feet 1 inches.	90 pounds.	28 inches.

NAVAL MEDICAL SERVICE.—I. NAVAL MEDICAL DEPARTMENT.—*Historical Notice.*—"The Marine Committee" of the Continental Congress made provision at an early date for a medical department of the navy, and declared "the care of the sick and wounded to be objects of great solicitude." In the "Rules for the Regulation of the Navy of the United Colonies," adopted November 28th, 1775, this service was defined. After the completion of the revolutionary struggle slow progress was made, until 1794, when the entire naval service was augmented; yet at this time the medical departments of the army and navy were one, under an officer who bore the title of physician-general. Not until 1828 were the medical departments of the army and navy divided. In 1842 the bureau of medicine and surgery of the navy department was created, and W. P. C. Barton was nominated its chief. By the act of 1871 the entire service was reorganized, the grades of medical director, and medical inspector created, and the title of surgeon-general, with the relative rank of commodore, conferred on the chief of bureau. In March, 1898, this officer was given the rank and title of rear-admiral.

The organization of the medical corps of the navy is essentially that created by the act of 1871, and amended by the acts of 1898 and 1900.

The grades, ranks, and titles in the medical corps of the navy, compared with that of the line of the army and navy, is shown in the table prepared by Medical Director Gihon, as modified by existing law.

U. S. ARMY.	U. S. NAVY.	
	Line.	Medical Officers.
All Officers.	Line.	Medical Officers.
.....	Admiral.
Lieut.-General.	Rear-Admiral	Surgeon-General.
Major-General
Brigadier.
Colonel	Captain	Medical Director.
Lieut.-Colonel...	Commander	Medical Inspector.
Major	Lieut.-Commander.	Surgeons (Senior).
.....	Surgeons (Junior).
Captain	Lieutenant	Passed Asst. Surgeon (Sr.).
.....	Passed Asst. Surgeon (Jr.).
1st Lieutenant ...	Lieutenant (Junior Grade)	Assistant Surgeon.

By the act of 1898 positive rank was conferred on all officers of the medical corps of the navy, and in 1900 assistant surgeons were given the rank of lieutenant (junior grade), corresponding to first lieutenant in the army.

The titles, grades, and numbers in the medical corps of the navy are as follows, viz.: 15 medical directors, 15 medical inspectors, 55 surgeons, and 105 in the combined grades of passed and assistant surgeons.

The number of officers in the grade of passed assistant surgeon is not limited, the law providing for promotion of assistants after three years' service.

The surgeon-general does not constitute an extra number, but is chosen from the grade of director or inspector for a term of four years, being eligible to reappointment. All officers of the navy retire on reaching the age of sixty-two years.

Examination and Appointment.—A candidate for entrance into the medical corps of the navy must be between

the ages twenty-one (21) and thirty years (30). He appears before a board, which is under oath to report on his physical, mental, moral, and professional qualifications.

Appointments are made in the order of merit reported by the board.

The examination is: (1st) physical; (2d) mental, consisting of (a) written, (b) oral, (c) clinical, (d) practical, and embraces about six days.

The board of medical examiners sits permanently at the Naval Hospital, New York. Prior to 1897 no examination was required from the grade of passed assistant to that of surgeon, but under present law examinations occur with each promotion. The examination for the grade of surgeon relates largely to an officer's experience attained in the lower grades. It comprises the following subjects: (a) Naval regulations, in so far as they pertain to the medical department; (b) thesis on general and naval hygiene; (c) thesis on clinical medicine; (d) practical bacteriology and chemistry; (e) microscopy and microbiology; (f) military surgery.

The flow of promotion is dependent upon resignations, dismissals, retirements, and deaths.

Officers reaching the grade of surgeon at this time (1900) have been in the service about ten years. The disposition of officers entering the corps depends upon the exigencies of the service; if these permit, they are ordered to receiving ships, and gain some preliminary knowledge of the duties and life at sea. The percentage of those given permission to appear before the board of examiners, who pass, is small. Thus, of the twenty-two candidates who presented themselves during the fiscal year ending in 1896, four were rejected physically, twelve were rejected professionally, and six were found qualified for the position of assistant surgeon. It cannot be concluded from this statement that the examination is unduly rigorous, but rather it is indicative of insufficient academic study and a lack of thoroughness in the professional equipment, which we fear is far too common a condition among the graduates of a large number of medical schools in the United States.

The compensation of officers of the medical corps is that of their corresponding rank in the line, and is shown as follows:

PAY TABLE.

	At sea.	On shore.	Allowances per annum.*
Assistant Surgeons: Rank of Lieutenant (Junior Grade).....	\$1,650.00	\$1,402.50	\$288.00
Passed Assistant Surgeons:			
Rank of Lieutenant (Junior Grade)...	1,650.00	1,402.50	288.00
After five years in the service.....	1,800.00	1,530.00	288.00
Rank of Lieutenant.....	1,980.00	1,683.00	432.00
After five years in the service.....	2,160.00	1,836.00	432.00
After ten years in the service.....	2,340.00	1,989.00	432.00
Surgeons:			
Rank of Lieutenant: After ten years in the service.....	2,340.00	1,989.00	432.00
After fifteen years in the service.....	2,520.00	2,142.00	432.00
Rank of Lieutenant-Commander: After ten years in the service.....	3,250.00	2,762.50	576.00
After fifteen years in the service.....	3,500.00	2,975.00	576.00
Medical Inspectors, rank of Commander: After fifteen years in the service.....	4,000.00	3,400.00	576.00
Medical Directors, rank of Captain: After fifteen years in the service.....	4,500.00	3,825.00	720.00
Surgeon-General, rank of Rear-Admiral.	5,500.00	5,500.00	720.00

The hospital corps of the navy was authorized by an act of Congress, June, 1897, thus securing for the service skilled men for the care of the sick and wounded.

The hospital corps consists of the following grades and rates: (a) Pharmacists, warrant officers; (b) hospital stewards, chief petty officers; (c) hospital apprentice, first class; (d) hospital apprentice, second class.

* Only when quarters are not furnished by the Government. Eight cents a mile is the allowance when travelling under orders.