

inal cavity of the same number of gophers. After a varying length of time the animals were killed and fresh, warm pieces of various organs, especially of the liver and the spleen, were examined microscopically upon a warm stage at the temperature of the body. Pieces from the different organs were also fixed and stained according to the best modern methods.

The general results obtained from these two series of experiments may be summarized as follows: After the injection of pure cultures tubercles develop in the same manner in the omentum of the animals of both the series and then, after a few days, in the liver and spleen. While the gophers treated with human tuberculosis show a process that gradually increases in intensity and accompanied with multiplication of the bacilli, those treated with the avian form present tissue changes that do not pass beyond a certain limit. The stimulus of the avian tubercle bacilli and their toxic products seems to exhaust itself, necrosis does not ensue in the foci of proliferation and emigration, and there follows a gradual involution of the tuberculous areas.

The first change observed after the injection was a small accumulation of leucocytes and then followed a proliferation of the fixed tissue cells recognized by finding karyokinetic figures in the connective tissue and endothelial cells. The epithelioid cells of the tubercles could readily be traced to the proliferating fixed cells, but also to large leucocytes. The presence of giant cells could be positively demonstrated on the fifteenth day after the injection. The size and the shape of the giant cells were found to vary very much. The same remark also applies to the number, the size and the shape, as well as the arrangement of their nuclei. In their interior there was found occasionally leucocytes, tubercle bacilli in rather small numbers, and also yellowish, sausage-shaped bodies. As regards the origin of the giant cell WELCKER concludes that they are formed by a fragmentation of the nucleus of an epithelioid cell, while the protoplasm of the cell continues to grow. At the same time he was not able to definitely exclude the possibility of their arising from the coalescence of several epithelioid cells because occasionally appearances were observed in which the outlines of individual cells could still be recognized. There were no conclusive evidences noticed of karyokinetic division of the nuclei of giant cells.

Active, independent motion was not observed to occur in the living giant cells examined on the warm stage and the examination as regards this point was very thorough indeed. It will be recollected that METSCHNIKOFF claims that giant cells are capable of ameboid motion and that he looks upon this as an evidence of their phagocytic action. This claim is consequently not supported by WELCKER's results. METSCHNIKOFF also claims that the phagocytic action

of giant cells is shown by their containing, in their interior, bacilli tubercle that present peculiar changes of form and of staining reactions—changes that he believes are due to the action of the cells. WELCKER found similarly changed bacilli in the interior of the epithelioid and giant cells of the tuberculous organs of the gophers he experimented with. Strangely enough, he found also that these peculiar, glistening, sausage-shaped masses give the iron reaction with sulphid of ammonium or ferrocyanid of potassium and hydrochloric acid. He believes that these bodies represent tubercle bacilli that have been changed as a result of cellular activity, but he can not definitely exclude the possibility that these evidences of degeneration occur in bacilli that have been acted upon by other not well understood, extra-cellular influences. It is consequently not proven that, in experimental avian or mammalian tuberculosis in gophers, the tubercle bacilli are destroyed directly by the activity of the cells and that a struggle takes place between the cells and the bacilli. WELCKER was not able to find the products of altered tubercle bacilli referred to in tuberculous material from other sources than gopher tuberculosis. Material from various sources, such as the skin of lupus, was examined with negative results as far as this point is concerned. The principal conclusion to be drawn from WELCKER's investigations are that certain gophers are very susceptible to mammalian tuberculosis, but relatively immune to the bacilli of avian tuberculosis; that giant cells are formed in the main from epithelioid cells whose nuclei have undergone fragmentation; that the giant cells in the tuberculous foci of gophers do not possess ameboid movement; and that the power of giant cells to destroy tubercle bacilli is not definitely demonstrated, although they frequently contain altered and apparently dead bacilli. The function of the giant cell in tuberculosis is consequently not well understood.

A VOICE FROM THE PAST.

In connection with the attempt being made by the medical officers of the Navy to obtain the same rank, pay and emoluments as the medical officers of the Army, in which they have received the unanimous support of the AMERICAN MEDICAL ASSOCIATION, the AMERICAN ACADEMY OF MEDICINE, and the ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES, the subjoined letter to a former Secretary of the Navy, written eighty years ago and signed by the senior line officers of the Navy, the heroes of the war of 1812, will be of interest to the members of the medical profession. The hearty indorsement of the claims of the medical officers of the Navy to consideration, the generous appreciation of the value of their services, the unqualified recognition of their military status, and the declaration "that justice requires they should, at all events, receive a compensation and rank equal to

what has been enjoyed by the medical officers of the Army," by these men whose names are historic, ought to shame the youngsters, who, as partisans in the wretched line and staff dissension which to-day disgraces the Navy, are seeking to deprive the officers of the Medical Corps of the rights, privileges and dignities of military rank, relegating them to a position of inferiority to the youngest graduate of the Naval Academy, denying them authority even in their own department and according them only an undefined "*disciplinary control*" over their own subordinates.

It puzzles a soldier's, as it does a citizen's, comprehension, why the medical officers in the U. S. Marine Hospital Service, like those in the U. S. Army, should *command* the commissioned and non-commissioned officers, men and employes of the Hospitals to which they are detailed, while the medical officers of the Navy are only ordered "*in charge of*," even such superb institutions as the U. S. Naval Hospitals at New York, Norfolk, and Mare Island, where the military personnel of officers, seamen, marines and employes numbers several hundred persons.

It is earnestly hoped that the members of the medical profession, who are in the Senate and House of Representatives of the present Congress will insist that justice shall at last be done this well-deserving and long neglected body of their professional confrères; and it is also the duty of the military medical men all over the United States, who are prominent members of every soldiers' and veteran organization in the country, to demand of their several representatives in Congress that the medical officers of the Navy shall be put upon precisely the same footing in rank, privileges and pay as their colleagues in the Army. It is time to put a stop to the puerile quibble that medical officers are only in or with the Navy but "not of the Navy," and therefore are not entitled to rank and equal privileges with the line—that they are only auxiliary and non-essential, and to the studied disparagement of them as non-combatants, in face of the statistical fact of their proportional losses by casualties in time of war.

The memorial of the line officers of the Navy at the time of the famous victories of the second war with Great Britain is as follows:

NEW YORK, May 16, 1816.

SIR.—We have heard with pleasure, that it is the intention of the medical officers of the Navy, to address a respectful memorial to you, requesting that measures might be taken by the Department to obtain for them a definite rank in the service, an increase of pay, and the establishment by law of the rank of hospital surgeon. It has also been suggested to us that the opinion of the senior officers of the Navy on the justice and expediency of these claims, might not be without benefit. We feel it, therefore, as a duty incumbent on us to state, that we consider the Medical Department of such great importance to the Navy of our country, that no reasonable measure ought to be omitted, which could have a tendency to retain in the service the professional ability of these gentlemen, who, by their experience, knowledge, zeal and humanity, have procured

the esteem and confidence of those with whom they have been associated; and we also beg leave to express our belief that no reasonable inducements would be objected to by Congress, to procure for those who are engaged in a perilous service, and who are constantly exposed to the diseases of all climates, the best medical aid the country affords.

To effect this it must be obvious that the rank and pecuniary emolument of medical officers ought to bear some proportion to what gentlemen of professional eminence would be entitled to in private life; and we consider that justice requires they should, at all events, receive a compensation and rank equal to what has been enjoyed by medical officers of the Army. * *

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With the most profound respect, Sir,

Your obedient servants,

SAMUEL EVANS,
JOSEPH BAINBRIDGE,
S. ANGUS,
JAMES RENSHAW,
GEO. W. RODGERS,
JAMES T. LEONARD,
EDWARD TRENCHARD,
JAMES JONES,
L. WARRINGTON.

To the HON. BENJAMIN W. CROWNSHIELDS, Sec'y Navy.

A similar paper, dated Dec. 13, 1816, in almost the same language and addressed as above, received the following signatures:

WILLIAM BAINBRIDGE,
ISAAC HULL,
D. D. DEACON,
ALEX. W. WADSWORTH.

EXTENSION OF HOSPITAL CORPS DRILL IN THE ARMY.

Of late there has been a marked activity in the Medical Department of the Army, the tendency of which is specially directed toward increased efficiency in field service. We may note, for instance, the recent modification and improvement in the hospital corps pouches, the disuse of the heavy and useless side arms with which the men were encumbered, the adoption of a new litter weighing six pounds less than the old one and the convention of a board to remodel the Drill Regulations. Were a similar activity manifested by the other War Department bureaus we might be warranted in concluding that a prospect of war was operating as a stimulus. It is true that the Ordnance Department is always progressive, that the Commissary Department is considering an "emergency ration" and that the other bureaus are active in their special lines; but nevertheless we understand that, so far as the Medical Department is concerned, this progress in the direction of efficiency for active service is no transient exhibition of energy in view of imminent possibilities, but a steady advance on well matured plans for the improvement of the Corps. We are led to make these remarks by the publication of the 13th inst. of an order from Head Quarters of the Army requiring all enlisted men of the army to be drilled by their company officers in litter-carrying and in the methods of rendering first aid to the sick and wounded; and by the same order the surgeon of the post is called upon to