

355.5805
C.H.

UNIVERSITY OF ILLINOIS
~~LIBRARY~~

.... CHEMICAL WARFARE



VOL. 4.

June 24, 1920.

NO. 6.

355. 5805
C H
v. 1



CHEMICAL WARFARE

A Magazine devoted to the activities of the

CHEMICAL WARFARE SERVICE

Published weekly at Headquarters
Edgewood Arsenal - Edgewood, Md.

Vol. 4

June 24, 1920.

No. 6.

Board of Directors.

Lieutenant Colonel Amos A. Fries, C.W.S., U.S.A.,
(Chief, Chemical Warfare Service),
Major E. J. Atkisson, C.W.S., U.S.A.,
(Commanding Officer, Edgewood Arsenal),
Lieutenant Colonel H. H. Stickney, Jr., C.W.S., U.S.A.,
(Lakehurst Proving Ground),
Major O. E. Roberts, C.W.S., U.S.A.,
(Chief, Chemical Industry and Intelligence Division).

Editor.

Mr. Ray B. Compton, C.W.S., U.S.A.,

German Problems in Gas Training.

The Germans also had serious troubles of their own over the psychology of gas training. As stated elsewhere they were using mustard gas nearly eleven months before the Allies began using it. During that time, for purpose of morale, if not sheer boastfulness the Germans told their men that mustard gas could not be made by the Allies; that it was by far the worst thing the war had produced - and in that statement they were correct - and that they would win the war with it - in which statement they were far from correct. When the Allies began sending it back to them they had to reverse their teachings and tell their men that mustard gas was no worse than anything else, that they needn't be afraid of it and that their masks and other protective appliances gave full protection against it. They thus had a problem in psychology which they never succeeded in fully solving. Indeed there is no question but that the growing fear of gas in the minds of the German is one of the reasons that prompted him to his early capitulation.

Editorial Comment.

If you have been connected with an institution which has done good work, a portion of its success has been your success and whether now connected with that institution or not, you have a right to be proud of its work, to speak of it with pride, and to glory in its achievements as a part of your own. If, on the other hand you have been connected with any institution which has failed to do good work, a portion of its failure is your failure, and if you are not now connected with that institution, it little behooves you to tell of its failures for in so doing you are condemning yourself.

You who are a part of the Chemical Warfare Service may measure your own success or failure by that of this Service. You who are a part of Edgewood Arsenal or who have been a part thereof can measure your own efficiency by that of this Arsenal. If the work which Edgewood has done in the past year has been badly done, if its work has been wasteful, extravagant or inefficient, then you who have been a part of its personnel, have yourself to blame. If, on the other hand, its work has been well done, if it has been a real part of the defenses of this Nation, if it has been one of America's really efficient organizations, then a part of its success has been yours and you may be justly proud of its work.

For no matter what your position has been in Edgewood's family of workers a portion of its success or failure has been yours. If success has crowned its efforts the men at the head will not try to take all the credit for they could have achieved but little without your loyal support. If failure has been its lot, you can not hide your part of that failure behind the assertion that there was bad leadership or supervision, for the best of leaders cannot make success without loyal and efficient followers, and even poor leadership will accomplish something if the rank and file are of good material.

We are not trying to force our opinion of Edgewood's work upon you. In our humble opinion that work during the past year has been something of which everyone from the highest to the humblest may speak with pride. In speaking of that work with pride, we take a small share of the credit unto ourselves believing that we have contributed something towards its success. If you think as we do that Edgewood has done well, you may speak of that work with pride knowing that in the good work of an institution of which you were a part, its success has been your success. If you think its work has been a failure beware how loudly you proclaim that fact lest you yourself be convicted of inefficiency by your very condemnation of the work of which you did a part.

During this coming week, a large number of the Arsenal Family are leaving its employ to take up their work in other fields. They are leaving not because they are not wanted, for the character of their work has been greatly appreciated they are good workers or they would not have so long remained here. We wish each and everyone of them success in their new fields of endeavor, and believe their efforts will be crowned with that success, for we think the success of Edgewood Arsenal has been their success. They may one and all point to the work of this Arsenal as a part of their success, for they and their work have been a part thereof.

The Old Army and The New

By Major General J.G.Harbord. U.S.Army.

Major General, Who Enlisted Thirty Years Ago as Private, Tells Something of the Changes of the American Army During the Past Thirty Years.

Old Post Civil War Army

I joined the Army as a recruit at old Fort Spokane in the then territory of Washington in January 1889. Automobiles were unknown and railroads were by no means the network over the West that they are now. The last 65 miles of my journey were made in a sled drawn by horses. Instead of being met and conducted to the barracks that were to be my home, the sled stopped in front of the Post Trader's store and deposited me and my scanty baggage in the snow. A few soldiers stood around the front of the sutler's establishment, but no reception committee appeared.

Next morning I went on duty as kitchen police before I had drawn my uniform. The services of a recruit to do permanent kitchen police were so prized that progress with his recruit drill was impeded instead of facilitated in order that, for a longer period, he might be available to monopolize that unpopular duty. Our commanding officer was one of the Old School, who believed that a garrison should be awake a considerable time before daylight. At 4:00 o'clock those winter mornings, before a streak of dawn reddened the east, the company turned out in darkness for reveille roll-call. As kitchen police a recruit had to be up sometime before that in order that breakfast could be ready immediately after reveille. The hours of roll-call and for meals were not then prescribed in the Army Regulations as they are now, but were held at the pleasure of the Commanding Officer for the time being. Those early hours were enforced at a time when the snow was five feet deep on the parade ground, and it was impossible to move off the beaten track. No drills were conducted in the company during that winter except those for my benefit in the dining room in the short intervals of forenoon when my duty as kitchen police did not occupy my time. I was kitchen police for a month with-

New, Democratic, Peace-time Army

In 1920, the recruit is met at the train generally by an officer, taken to his barracks, where the new conditions that surround him are courteously explained to him, he is provided with a neat uniform that fits him, shoes not unlike those worn in civil life, and every effort made to induce contentment, comfort and happiness. The American soldier ration has become the most liberal in the world, vegetables, milk, butter, eggs, the best meats in the world, refrigerated by processes that were undreamed of thirty years ago. Libraries are at his convenience. Service Hostess Clubs are open to him where ladies devoted to his welfare and benefit, cater to his contentment and supply the home element. Gymnasiums, swimming pools, skating rinks, dances, service clubs, are a feature of practically every post.

The pay is much more than double what it was in those days. The number of Chaplains has been greatly increased. Church services are accessible to every soldier. Morale, Educational and Recreational Officers are now well-known titles in our military parlance, and their existence has but one purpose - to look after the welfare of the service through the welfare of the young soldier. If he errs and commits disciplinary faults, discipline must still be maintained as long as Armies still exist, but his rights are well guaranteed to him. He is entitled to Counsel; his trial must be prompt; the outside limits of his punishment are carefully prescribed by the President and the course of military justice is neither slow nor cumbersome. Its only fault, in my opinion, is that like all Anglo-Saxon judicial procedure, it is organized too much for the protection of the malefactor.

The term of enlistment is one or three years. Discharges by favor are generally granted when good cause is shown. Furloughs are easy to obtain. In event

out interruption.

Drawing clothing was a great event in the life of a recruit. It was the old blue, beloved of Civil War Memory, and much of it was old stock left over and still unexhausted though twenty-five years had elapsed since the close of that conflict. The shoes were the type known as brogans. The trousers were the old very light-blue, cut long for short men and short for long ones. The cap was the old chausseur type the flat top of which made the Old Army bald-headed. The blouse was dark blue but of indefinite size, which might or might not fit. Older soldiers drew what was called "urmade" clothing, garments cut extra large and made up but which could be made by a tailor at private expense. Those were luxuries that were not for recruits. "Draw Day" when the whole company drew clothing was the occasion for gambling. The stakes were reckoned in terms of socks or white gloves. I have seen a soldier get up from a small poker game on the evening of "draw day" with 12 dozen pairs of socks, but everybody else in his squadron was sockless.

Soldier fare was very simple in those days. Each company made a garden in the summertime. What vegetables it had it raised. The vegetable ration came in later. There was no butter, no milk, and the coffee was sweetened by the cheap unrefined brown sugar known as "issue." The canteen or exchange with its substantial dividends to company funds, did not yet exist. Some savings on rations were made through sales of bacon and coffee. Breakfast and supper were usually but different varieties of what soldiers called "slum." It was generally hash, bread and coffee for breakfast, and stew, bread and coffee for supper. Dinner at mid-day was the meal of the soldier, and we had generally roast beef, brown gravy, potatoes, bread and coffee. When we had beans, which was pretty often, we

of his death, War Risk Insurance and allotments guard the future of those dear to the soldier. He can allot portions of his pay to the support of absent members of his family. If he desires to deposit any portion of his pay with the paymaster the Government will receive it and giving him a deposit book will pay him 4 per cent interest on his money until the time he leaves the service.

One of the latest features of American soldier life is the new system of education. The training divides generally into two classes, Educational and Vocational. The Educational is further divided into basic and advance courses. A certain percentage of illiterates enlist in our service, men of foreign parentage or men of remote country districts, whose opportunities have not been what they should be. Such men are required after their literacy has been tested, to attend school until they are able to pass the examinations. They start in with the basic course of reading, writing, arithmetic, grammar, geography, physiology and hygiene, American history and government. It is a process of Americanization for the young foreigner, and no illiterate American can take the course without having his Americanism strengthened and his patriotism keyed to a higher pitch. The advanced course consists of higher work, suitable to those who have already had schooling, and ranges from the requirements of about an average Eighth Grade course through advanced High School to College work. The teachers are experienced civilian instructors, officers and soldiers being employed only when specially fitted for such work. The motto is Learn While You Earn, and it means that support during his schooling, which is the desire of every poor American boy anxious for a good education. The Government clothes, feeds, and pays you while affording you the opportunity to go to school, and as high in school as you like. The school is fitted to the pupil not the pupil to the school. If the soldier desires a class not yet organized

had no other vegetable, and no meat except the pork that went with them. Occasionally on Sundays there was pie of dried apples or peaches, or pumpkin in the fall of the year. Fourth of July, St. Patrick's Day, if the First Sergeant was Irish, Thanksgiving and Christmas there was a feast of good soldier fare and everybody gorged themselves, and talked about it until the next holiday.

Soldiers stood reveille, retreat, tattoo and check-roll calls in those days. Tattoo was generally at 9:00 a.m., with taps an hour after, and "check" at 11:00. There were no summary courts-martial. Everything was handled by the quite cumbersome method of the Garrison Court, and the President had not yet published a list of limiting punishments. The soldier was not yet entitled, under the Regulations to have counsel when tried. Men under charges often waited very long periods for the assembly of General Courts Martial.

The company commanders were still generally veterans of the civil war who had, many of them, as volunteers, held higher rank during the war, and had never philosophically accepted the peace-time reduction in grade which followed war. The Colonel had been a Major General and a Division Commander and was always addressed as General, and had sworn, it was said, never to attend a formation of anything as low as the regiment of which he was the colonel. The retired list was limited. There were no examinations for promotion for officers and no process of elimination of dead wood except by disability or court martial.

The Post School was generally under the Chaplain, if there was one at the post. Attendance upon it was voluntary but sometimes disciplinary. The teacher was generally an old soldier, unable to do other duty or some young man studying for a commission, who sought the detail because it gave him control of practically all his time, paid fifty cents extra per day, and excused him from roll-calls. It amounted to

Continued at bottom of next column

at his post, one is organized for him.

The Vocational Training means the opportunity to learn a trade while serving the Government as a soldier. Carpentry, painting, electricity, plumbing, stenography, music, bookkeeping, blacksmithing, chauffeuring, mechanics - all the multitude of trades that have come in with the motor vehicle -- are now made available at the Army Vocational School. Here, like in the educational work, the best instructors in their respective lines are employed, and officers and soldiers employed as teachers only when specially qualified. There has never been such an opportunity offered before by any government. It sounds too good to be true but it is a fact.

With all these opportunities go still the time-honored advantages that have always pertained to the soldier profession. Outdoor life, regular habits, healthy food, exercise, and physical development. These opportunities cannot be overstated. The discipline of the soldier means the difference between success and failure as a civilian later in life. The duty of the army must still be done. It is not all dancing, welfare work and education. Orders have still to be obeyed, work must still be done, men may still have to give their lives for their country, but the profession of Arms is one of the oldest in the world and there is none more honorable to which better men belong.

nothing so far as offering the opportunity for an education to the young soldier, and the words Vocational Training had not yet appeared in the military vocabulary. At the post of five companies where I served, there was a single typewriter, which no one but myself could use. I had partly paid my way through college by cataloging a library and had learned the use of the machine.

Enlistment was for five years, and furloughs were rare. Discharge before expiration of term of service, or "by favor" as it was called, was very infrequent. Once in the service there was no honorable way out for five years except by favor or disability. Pay was thirteen dollars per month and "found."

If a soldier of that day, 1889, could have been confronted with the changes that were in prospect in the military service, he would as little have credited it, as the Min-

ute-men of Lexington could have comprehended a lecture on airplanes and submarines, wireless telegraph or moving pictures.



Future of Chemical Warfare.

The following passages, bearing on the future of Chemical Warfare, are taken from a memorandum issued by the Secretary of State for War (British) relating to the Army Estimates for 1920-21 (Cmd. 565. 3d.):

Research and experiment in chemical warfare must be pursued. Research must not only be directed towards the gases and apparatus likely to be employed in the future, but also towards protection against all possible gases. Training in the use of gas will be confined to appropriate branches, but training in defensive measures will include the whole Army.

We must continue our studies of what is known as chemical warfare. No nation has renounced the use of poison gas as a result of the Peace Conference. There are nations whose word we could not respect if they did renounce it. It is essential to study the offensive side of the chemical warfare if we are to be prepared for defense. The great importance of adequate defensive appliances arises from the fact that preparations for the offensive use of gas can be made in peace time with great secrecy, and may have far-reaching and even fatal results in the early stages of a war.

For these reasons it is necessary to make adequate provision for research, experiment, and design in connection with war material.



Derigible Built to Bomb New York City.

The German rigid airship L-72, which was built especially for the purpose of bombing New York City, had been designed for a non-stop voyage of 9,500 miles. It would have carried approximately 4-1/2 tons of bombs. The big derigible is 19 feet longer than the Capital at Washington, or 770 feet long, is 95 feet high, and has a width of 88 feet. It has a total lifting power of 85.75 tons, and maximum speed of 62 miles per hour. It is equipped with six 240 horse power gasoline engines, or a total of 1440 horse power, and has a gasoline capacity of 11,000 gallons. This monster of destruction was lacking but three days of completion when the armistice was signed. It is now in possession of the French.

The Army is so good that its representatives do not have to oversell it. Under valuation wins more adherents than enthusiastic misrepresentation. The truth is good enough. (U.S. Army Recruiting News).

No man ever accomplished more than he thought he could.

The Fixed Nitrogen Research Laboratory.

by Dr. A. B. Lamb.

The disposition of the experimental Haber plant at Sheffield and the huge Cyanamide plant and water power development at Muscle Shoals, Alabama, has been a serious problem confronting the War Department since the conclusion of hostilities.

On the one hand, these plants must be maintained in a state of instant readiness and efficiency in order to afford the military security which was the chief motive for their erection. Again, they represent a great monetary investment which the Government cannot afford to abandon or neglect. Finally, their operation would furnish a supply of cheap nitrogen which would help at least in some measure to meet the ever increasing fertilizer requirements of our country.

On the other hand, the present products of these plants, namely, lime-nitrogen, ammonia and ammonium nitrate, are not immediately salable in large amounts for fertilizer purposes, either because of their intrinsic disabilities or because of the unfamiliarity of our farmers with their use.

To study these latter problems and because the knowledge of the fixation of atmospheric nitrogen is of vital importance to the military and economic welfare of the nation, and for other reasons, Mr. Arthur Graham Glasgow, Fixed Nitrogen Administrator, in the Spring of 1919, established the Fixed Nitrogen Research Laboratory, under the supervision of the Nitrate Division of Ordnance, with Dr. Arthur B. Lamb as Director, Dr. Richard C. Tolman and Dr. William C. Bray as Associate Directors. The present staff (April 15, 1920) consists of a total of one hundred eight persons, seventy-seven on the technical staff and thirty-one on the business staff.

The Laboratory is located at the American University, Washington, D. C., where it occupies a number of buildings, the largest of which is the Ohio Building, with a floor space of 50,000 square feet. These buildings together with a large amount of scientific and technical equipment were transferred to the Laboratory from the Research Division, Chemical Warfare Service. Except for the limited technical and industrial facilities of the city of Washington, the laboratory is excellently located. The floor space is ample and the apparatus and equipment unusually complete. Moreover, the location of the Laboratory in Washington makes it possible to carry out important work in cooperation with the Department of Agriculture. Five men from the Bureau of Soils, including several who have had long experience in nitrogen investigation, are giving practically all their time to the work of the Laboratory. Many tests on growing plants, both in pots and on twentieth and fortieth acre plots are also being carried out in cooperation with the Bureau of Plant Industry.

The smaller, partially completed Haber plant, U.S.N.P.No.1 at Sheffield, Alabama, never operated on a commercial basis; the large Cyanamide plant, U.S.N.P. No.2, was practically complete when the Armistice was signed, and although now closed down, has been in full operation and has produced thousands of tons of product. Every part of it is well designed and functions successfully, and the whole is undoubtedly not only the best but the largest Cyanamide plant in the world, with a capacity

of either 220,000 tons of Cyanamide, or 110,000 tons of ammonium nitrate per year.

The first problem of the Fixed Nitrogen Research Laboratory has been to investigate methods for the agricultural utilization of the products of this plant. This is a problem with many angles since Cyanamide, the primary product, is a form of fixed nitrogen which at present has in America, only a limited use in agriculture, and the many possible ways of increasing its use as well as the many other forms of fixed nitrogen which can be made from it must all be investigated. Researches along these lines have included such problems as the oiling and hydrating of lime-nitrogen to reduce its undesirable properties, the granulation of Cyanamide the mixing of Cyanamide with basic phosphates, the production from lime-nitrogen of a non-basic fertilizer containing urea, and the production from lime-nitrogen, ammonium sulphate, ammoniated superphosphate, ammonia phosphate, pure urea, ammonium nitrate and various double salts of ammonium nitrate. It is believed that such researches will make possible a decision as to the best methods by which this great plant at Muscle Shoals can best serve the peace-time needs of this country.

The other government plant, U.S.N.P. No.1, using the Haber process, has never operated satisfactorily. It represents, however, a much smaller investment than the Cyanamide plant and can undoubtedly be made to operate with further study and research. The problem of the first importance in connection with it is the discovery of a robust and active catalyst for the reaction between nitrogen and hydrogen. The remodeling of the whole plant will be dependent on the ultimate choice of this catalyst. A further important problem in this redesign is the question of the best method of removing ammonia from the circulating system, and this is being investigated at the Fixed Nitrogen Research Laboratory by a group of investigators from the Bureau of soils, working in cooperation with the staff of the laboratory. A third problem of considerable importance for the redesign of this plant is the study of those alloys of steel which are best adapted to withstand the high pressures, high temperatures and action of ammonia encountered in this process. Work along these lines is under way.


Besides the above problems which are determined by the desirability of putting the two government plants into operation, problems of less pressing importance are being studied, such as improvements in the methods of operating Cyanamide plants, and the theory of the fixation of nitrogen by the Electric Arc. This latter process though of considerable commercial importance, where the very cheapest electrical power is available, is at present of importance in America only from a military point of view, because of the possibility of its rapid installation in time of emergency. A fundamental investigation of the relation between gaseous ionization and chemical reaction, however, may make this process also commercially important in America, and some work is now underway at this Laboratory.

The activity of Germany on nitrogen research is certainly instructive. After years of extensive research and experimentation with governmental support a Haber plant with the very considerable output of over 20 tons of ammonia per day was erected at Oppau in 1913. At the outbreak of the war this was very greatly enlarged. Of all the buildings constructed at that time and in spite of their several years successful experience with this process, the largest and finest was the Research Laboratory. It is 300 feet long, 100 feet wide and five stories high, and is entirely devoted to research. In August, 1919, although the plant was

not operating there were said to be seventy-five chemists at work in this building on research problems; during the war there were said to have been two hundred and fifty chemists thus engaged.

The future of the Fixed Nitrogen Research Laboratory will presumably depend on legislation now pending in Congress. The Senate Bill No. 3390 and the corresponding Bill before the House, besides providing for a self-sustaining Federal agency to operate the government fixation plants, also specifically provides for research laboratories and experimental plants for the development of fixed-nitrogen production.

This important field of research certainly needs the resources, the scope and disinterested point of view which the Government alone can provide.

==========

Protection in War is Relative Only.

Napoleon is credited with saying "In order to make an omelet it is necessary to break some eggs" Every student of war realizes that casualties cannot be avoided in battle and yet one American Staff Officer went so far as to refuse to use gas offensively unless the Chemical Warfare Service could absolutely guarantee that not a single American casualty could occur under any circumstances. This same idea early got into the heads of some of the laboratory workers on masks. They seemed to feel that if a single gas casualty occurred through the failure of the mask, their work would be a failure or at least that they would be open to severe criticism. Accordingly efforts were made to perfect masks and to perfect protection regardless of the discomfort imposed upon the wearer of the mask. This idea was very difficult to eradicate. The laboratory worker who accustoms himself to experiment with a particular thing forgets that he develops an ability to endure discomfort that is not possible of attainment by the ordinary man in the time available for his training.

Furthermore, if the need for such training can be avoided it is of course highly desirable. This applies to the mouth-piece of the British respirator; to elastics that cause undue discomfort to the face; to the nose-clip and to the large boxes that cause too great a resistance to breathing.

It may be taken as a general rule that when protection requires so much effort or becomes so much of a burden that the average man cannot or will not endure it, it is high time to find out what the average man will stand and then provide it even if some casualties result. Protection in battle is always relative. A man who cannot balance protection against legitimate risk has no business passing on arms, equipment or tactics to be used in battle. (Gas in Defense).

There is no real elevation of mind in contempt of little things; it is, on the contrary, from too narrow views that we consider those things of little importance which have in fact such extensive consequences.

Fenelon.

Chemical Warfare Work in the Southern Department.

No one better than those who went through the trying days of German superiority in gas from March 21st to July 18th, 1918, and then witnessed the Allied Armies as they equalled and passed the Germans in the quantity of gas used, advance from the Marne to the Vesle, reduce the St. Mihiel salient, drive the Germans from their theretofore impregnable positions in the Argonne, and all along the line drive them back with heavier losses to the defenders than to the attacking armies, - no one better than those well versed in the causes of the early defeats and later successes realizes the value of gas warfare.

Of such troops, who better than the famous Second Division know the value of gas warfare? Others may and perhaps do know it as well, but certainly none know it better than those boys of the Second - boys who fought through Chateau Thierry, Soissons, Blanc Mont, St. Mihiel and the Meuse-Argonne.

Who better than Major General J.G. Harbord, U.S. Army, whose record we all know, is in a position to realize that gas warfare, gas troops properly cooperating with infantry, make for success in defense or offense?

It was little to be wondered therefore that with Major General Harbord commanding the Second Division at Camp Travis, Texas, that we should see there a school for students in Chemical Warfare both in defense and offense. Such a school has been established there, lasting for ten days, at which about sixty hours of instruction are had. The first course of this school was completed Saturday, May 22nd, when a demonstration of the effectiveness of gas warfare as an offensive weapon was given before several thousand spectators.

Advancing behind a dense smoke screen, the Ninth and Twenty-third Infantry drove the "Red Army" from the eastern edge of Camp Travis and completely routed the enemy. Starting at 10 o'clock, batteries of Stokes mortars sent a barrage of gas shells into the enemy trenches, filling the woods along Salado Creek with mustard gas, but leaving a lane in the center through which the advancing infantry rushed the enemy, taking all objectives together with a large number of prisoners.

After the completion of the demonstration, the students were addressed by Major General Harbord after which they were presented with diplomas.

The Southern Department Chemical Warfare School and the demonstration were in charge of Major Earl C. Popp, C.W.S., who has a host of friends both at Edgewood and in all places where you find C.W.S. personnel, assisted by Lieut. Col. George T. Everett and three officers from Washington.

Major Popp is, in addition to his duties as Department Chemical Warfare Service Officer and Commandant of the Chemical Warfare School at Camp Travis, preparing a training schedule for the Texas National Guard Encampment near Austin, Texas, which is scheduled for next August. The training not only of the regular army but also of the National Guard in all phases of gas warfare is a most important matter, as in event of actual war, the greater the extent of chemical warfare training which is had by the young men and boys of this Nation, the shorter will be the casualty lists given out by the War Department.

Chemical Warfare or gas accounted for over 25% of all American casualties during the World War. Many of these were preventable casualties - that is by proper training in caring for himself during a gas attack, many an American would have been spared the pain of being a victim of gas warfare. Proper training will lessen gas casualties by at least 50%. Following in the footsteps of the Second Division and the Texas National Guard means for the Regular Army and the National Guard of other States greater efficiency as defenses of the Nation.

Change in "Chemical Warfare"

The end of the fiscal year 1920, finds "Chemical Warfare" proud of the progress which it has made during that time. Beginning August 21, 1919, the first issue of this magazine appeared at Edgewood Arsenal as a thirteen-page mimeographed publication, with an Arsenal circulation of approximately 350. From then to the present time "Chemical Warfare" has grown to its present multigraphed edition with a circulation of many times that of the first issue.

At first "Chemical Warfare" carried only news and gossip of the Arsenal of interest to those of us actually living here. Gradually our field broadened until at the present time approximately fifty-per-cent of our readers are ex-officers, soldiers, and civilians, who wish to keep in touch with the Service and what it is doing. Their interest is not in the small affairs of Edgewood Arsenal but in the Service in general.

"Chemical Warfare" has come to the parting of the ways; either it must continue to grow and be the link binding the 25,000 ex-service men to the Service or it must continue to be an Arsenal newspaper; it cannot be both. We believe the readers of "Chemical Warfare" wish to see it go forward and not backward.

Beginning July 1st, "Chemical Warfare" will appear as a semi-monthly magazine, rather than as a weekly publication. With such change it will carry, it is hoped, a larger amount of real news of interest to the many thousands of ex-service men and friends of the Chemical Warfare Service.

This step is taken primarily as a betterment of the official organ of the Chemical Warfare Service. A secondary consideration is the saving of print paper of which as we all know there is a shortage in the United States at this time. While this shortage has never seriously affected this magazine, "Chemical Warfare" wishes to go on record as doing its part to relieve this shortage.

We are proud of the achievements of this magazine during the past year; we expect on July 1, 1921, to have greater reason to be proud than at the present time, and, with your cooperation to view as much improvement in the last issue of this publication in the fiscal year 1921 over this present issue, as this issue shows over the first issue published.

Reduction in Edgewood Personnel.

July 1, 1920, will find Edgewood Arsenal with a greatly reduced personnel. Nearly every section and department will commence the new fiscal year with a reduced force. Edgewood Arsenal has built up a personnel of which it has been justly proud; it is with deep regret that the Arsenal dispenses with the services of any one of the numerous employees who leave us June 30th. The appropriation for the fiscal year 1921 is such, however, as to make a large reduction in force an absolute necessity. Edgewood Arsenal wishes all those leaving its ranks the greatest of prosperity in the new fields to which they go from here.

Life is constantly weighing us in very sensitive scales, and telling every one of us precisely what his real weight is to the last grain of dust.

Lowell.

A LITTLE NONSENSE NOW AND THEN.

Is This an Admission about the Quality of Their Paper?

"Yesterday afternoon, he read his copy of the Eagle. Three hours later he died." (From an obituary in the Brooklyn Eagle).

Serious but Satisfactory.

"The condition of Mrs. _____, who is seriously ill here with pleurisy, is said to-night to be satisfactory. (New York Tribune).

We can imagine it.

"Man is," says Sir Oliver Lodge, "composed of several billion or trillion highly explosive atoms," which accounts at last for the way our old C.O. acted the time we saluted him with a cigarette in our mouth. (Home Sector).

A Disarming Order.

The atmosphere of the smoking car lent itself to reminiscence.

"Captain," asked the hardware salesman, "would you mind telling me how you lost your arm?"

"Not at all, not at all," replied the bronzed officer with the empty sleeve. "It happened this way: We were due for another turn in the trenches the next day, so they were giving a dance for us that night back in the rest camp. A few welfare workers were there and among them was the cutest little girl I ever met. I managed to dance with her most of the evening, and toward the end we wandered out in the moonlight. 'Captain' she said after a while, 'please remove your arm.'"

"And you know, she was such a little queen I just couldn't refuse her." (Home Sector).

The longer it takes the world to settle down, the longer it will take for it to settle up.

Her Army.

"There's one thing I've always wanted to ask you about your life in France," she said.

"Yes?" prompted the ex-buck.

"What did you and the colonel usually talk about at meal times?" (U.S. Army Recruiter).

The Punishment.

A certain captain in the Sixth Marines was a regular bug on hiking. He had some sort of an idea that a soldier's favorite pastime was indulging in fast ten-mile hikes. So in time he became known as "Hikem Hiram."

One day he had his outfit out for their morning's constitutional and was riding at the head of the column when one Marine who had a particular grudge against "Hikem Hiram," dropped out to the side of the road and took a pot-shot at him. Hiram heard the bullet whiz by his head and involuntarily turned and caught the man stepping back into the ranks. However, he kept on until the end of the hour when he stopped for the customary 10-minute rest period. Then Hikem got down off his horse and, with wrath written all over him, charged down upon the luckless private who had shot.

"Did you shoot at ME?" roared Hiram.

"Yes, sir," said the Gyrene who knew that he was caught.

"Sergeant, take that sharpshooter's medal off that man. Anyone who can't shoot any straighter than that doesn't deserve to wear it."

Needless to say, no one ever shot at Hiram again. (Stars and Strips).

Probably Patches Up Municipal Troubles
"Military and Civic Tailor" - (Sign in Perlman's Tailor shop, Washington).

Newspaper headlines state that the war raised the standard of boxing. Yes, and African Golf too they might add.

Increased Savings:

Pat: "This is the foist time inny of them corporations hev done innynthing to benefit the workingman."

Mike: "How is thot, Pat?"

Pat: "It is this siven-cint fare.

I hev been walkin' to and from me work and savin' the matter of tin cints, and now I kin save fourteen cints."

(Exchange).

Some Shot!

The Irish night watchman at the observatory was new. He paused to watch one of the observers peering through a large telescope. Just as the observer looked up a star fell.

"Man aloive," Pat exclaimed in amazement. "You're sure a foine shot."

(Exchange).

Kind or Discouraging.

Benedict - "Not married yet?"

Bachelor "No."

"But I thought you had serious intentions in a certain direction?"

"I did have, but the evening I went to propose to her, before I got a chance she told me she loved Browning, and Kipling and Shelley. Now what chance has a fellow got with a girl who is in love with three other men?"

(Yonkers Statesman).

Many of us wish we could do the same.

"The place being a nice-looking one with t. e names in gold on fly screening, I decided to take a chance, and putting my tooth out of my head for the moment I opened the door.

(Saturday Evening Post).

We've heard of people who would lose their heads if they were not fastened on.

"I sat down on the side of the bed. After placing my head on my bureau, and tried to figure the problem out."

(Mystery Magazine).

Read the best books first, or you may not have a chance to read them all.

Thoreau.

Well Known.

The property owner was trying to make conversation with the negro ash-collector.

"What's your name, my good man?" he asked.

"George Washington, sah," was the reply.

"Seems to me I've heard that name before," said the amused conversationalist.

"Ah wouldn't be surprised, boss. Ah's one of the bes' known ashmen in dis yere city." (Red Diamond).

Emergency Rations.

Lady of the House. "You say you haven't had anything to eat today?"

Tramp: "Lady, the only thing I've swallered today is an insult."

(Pearson's Weekly - London).

Dsillusioning Drouth

"Prohibition" said Uncle Bill Bottletop, "has brought disappointment to a number of wives who had nursed the idea that their husbands' unreasonableness was entirely due to licker."

(Washington Star).

The Greater Need.

Some day the Gideons, who see to it that there's a Bible in each hotel guest room, are going to fix it so that the man who makes the hotel rates has one too." (Detroit Times).

Will the wonders of scientific research never cease?

"A piece of heart of an unhatched chicken cut from the egg in 1912 by Albert H. Ebeling of the Rockefeller Institute of Medical Research has been invented for heating rivets."

(Tulsa, Okla. Tribune).

Probably they had heard him.

"For many winters May has fulfilled this delicate part on the open house program laudable, and with his previous experience and meditation on the subject, it is expected that his talk will be unsurpassed by none."

(Austin Daily Express).

PERSONAL MENTION.

Mr W.M.Chadbourne, formerly Major, C.W.S., now engaged in the practice of law at 165 Broadway, has obtained the cooperation of a number of former C.W.S., officers and soldiers in the formation of a Chemical Warfare Service Association, to embrace all former officers, soldiers, or civilians of the C.W.S. We understand that all such whose names and addresses are known will be invited to join this association at an early date.

Mr. and Mrs. Douglas H. McMurtrie are the proud parents of a bouncing boy. Mr. McMurtrie, formerly a Lieutenant of this Service was connected with the Intelligence Division, C.W.S., A.E.F.

Mr. C.E. Richardson, formerly Major and Adjutant of the C.W.S., in France has opened offices as a Consulting Engineer at 35 E. 41st Street, New York City. Mr. Richardson seems to find less worry in civil life than he did while in the Army as we rather doubt that his uniform would fit him at the present time. Mr. J.M. White, well known to all overseas C.W.S. men is associated with Mr. Richardson.

Former Major Frederick Pope, well known both to C.W.S. men in America and France is now a member of the engineering firm of Moses, Pope and Trainer in New York City.

Mr. C.J. West, formerly Major, Research Division, American University, is now connected with the firm of Arthur D. Little, Inc., Cambridge, Mass. Major West is devoting considerable of his spare time to the preparation of a popular history of this service.

Mr. W.M. Page, who during the war, rose from a private to a major, and who while serving with the First Gas Regiment was wounded, is now General Superintendent of the Copper Clad Steel Company, of Rankin, Pa.

Lieutenant Colonels Ernest McCullough and E.E. Corry, the former of Lakehurst Proving Ground and the latter until now Department Chemical Warfare Service Officer, Eastern Department, Governor's Island, N.Y., have requested discharges from the Service.

Mr. W.G. Lockwood, late Major, C.W.S., is Southern District Manager for the McIntosh & Seymour Corporation, with offices in Jacksonville, Florida.

Professor Marston T. Bogart, at one time Director of the Gas Service in this Country, before the organization of the Chemical Warfare Service, is with Columbia University, New York City. Colonel Bogart has promised an article for "Chemical Warfare" in the near future, dealing with the difficulties of the Gas Service encountered in America in the early days of the war.

Captains A.A. Bernheim and H.D. Truax of Lakehurst Proving Ground were visitors at Edgewood over Saturday and Sunday. They accompanied the Lakehurst Ball Team on its trip to Edgewood.

Mr. S. Elliott Finch, former Chief Clerk, C.W.S., A.E.F., and later 1st Lieutenant of this Service at Hanlon Field, in addition to his work with the Engineer Department, Portland, Oregon, is largely interested in one of the dry-goods stores of that city.

Dr. Leon W. Parsons, formerly Captain C.W.S., with the Research Division of this Service, is now Assistant Director of Massachusetts Institute of Technology, working with Professor Robert E. Wilson, formerly a Major C.W.S., who is now Director of the Research Laboratory of this same institution.

Former Captain Tom W. Balfe, both of the C.W.S. in this country and with the 1st Gas Regiment in France, is Manager of the Canned goods Department with Austin-Nichols, wholesale grocers of Brooklyn, N. Y.

Major S. J. DeLanoy, formerly Executive Officer of Edgewood Arsenal, left last Tuesday morning for Governor's Island, N.Y., where he will take over the duties of Department Chemical Warfare Service Officer, relieving Lieut.Col. E.E.Corry. The many warm friends whom he leaves at Edgewood, wish Major DeLanoy every success in making the soldiers of the Eastern Department well trained in every phase of Chemical Warfare.

Mrs. Heath and daughter, who have been visiting with Captain Heath, left for their home a few days ago.

Mr.C.I.Smith, who formerly soldiered at Edgewood, and who numbers all the old timers among his friends, visited the Post the early part of this week.

Mr.Sam McMullen, of the Quartermaster Department who was recently married is back on the Post. Mr. and Mrs.McMullen are living with Lieutenant and Mrs. Bradshaw near the Fourth Battalion Barracks.

Lieutenant Mackay has returned to Edgewood from Governor's Island where he was performing the duties of Department Chemical Warfare Service Officer during the illness of Lieut. Col. Corry.

A good crowd attended the regular Friday night dance given by the Edgewood Arsenal Officers' Club.

ATHLETIC NEWS.

Right after Memorial Day, the Edgewood Ball Team returned from Lakehurst proving Ground wearing crepe 8 inches wide. Lakehurst had just taken Edgewood down to defeat to the tune of 15 to 5. While Edgewood felt kind of in the dumps about this game, their spirit was correctly depicted in our cartoon of June 3rd. And did they come back? Well we'll say they did. Last Saturday we had the extreme pleasure of showing the Lakehurst boys that Edgewood has forgotten more about baseball than Lakehurst ever knew. The day was ideal, not too hot, but just warm enough so everyone was in fighting trim.

When the smoke had all cleared away and the tired score keeper had cleaned up his accounts, we found that Lakehurst had just made one poor lone tally, while the Edgewood boys had romped around the diamond for just twenty runs.

Robbins, who pitched six innings, allowed but two hits during that time, and struck out five men: but hit three men with pitched balls; Wadhams, who pitched the last three innings, allowed but one hit, and struck out one man. Although slightly wild at first, Robbins had the Lakehurst crowd eating out of his hand and Wadhams kept up the good work. Not one single Lakehurst man got free passage to first base.

Johnson, Kranse, and Dugan were on the mound for Lakehurst, the local crew just eating up the offerings of all three. Johnson allowed six hits in four innings, eight bases on balls and tried to kill three Edgewood men with the ball Kranse allowed four hits in two innings and Dugan no hits in two innings.

Lakehurst's lone tally came in the second inning after Frank had been hit by a pitched ball and after two errors by the local boys. Seven errors by Lakehurst contributed to Edgewood's high score.

After Edgewood had run up a good score the chance was excellent to allow all the boys to participate in the slaughter, and all substitutes (ten were used) proved just as effective as the regular team.

Following is the score by innings:

	1	2	3	4	5	6	7	8	9	Total	Hits	Errors
Lakehurst	0	1	0	0	0	0	0	0	0	1	3	7
Edgewood	6	2	2	2	4	3	0	1	x	20	10	2

The Lakehurst and Edgewood teams are due to play one game in the near future which will probably be played upon neutral ground.

This coming Saturday (June 26th) the Edgewood soldier and civilian teams are scheduled to play off the tie resulting from the game of the 14th. The game will be called at 2:30 at Walker Field. Judging from the interest display at the former game, the crowd will be large, so come early if you want a seat.

Arrangements are now under way to try and complete the inter-company schedule by evening games, as the regimental games have rather broken up the series previously arranged for. No games of this series were played during the past week, the standing of the teams being the same as reported last week.

It is hoped to complete the organization of the Post Track Team during this coming week. Those wishing to try out for same should be at Walker Field every afternoon between 2:30 and 4:45 and between 6:30 and 7:15 for practice. We have just as good material for a winning track team as we have for a winning ball team and everyone who has any ability whatsoever is urged to get out and let the Director see what he has in him.

Post Library.

A Post Library has been organized in the Post Exchange Building, which will extend free service to all persons living on the Reservation. Over three thousand books have been obtained, fiction, history, biography, travel and science. All the current magazines, daily and weekly papers are on file and open to anyone caring to read same. The wide screened porch opening off the Library is to be used as an outdoor reading room during the Summer months. A soldier has been detailed as Librarian. It is expected that the Library will be open about 4 PM to about 9:30 PM.

One night each week will be set apart as Home Night, at which time everyone will be encouraged to write a letter to the folks at home.

It is hoped that both the soldier and civilian personnel will make the greatest possible use of this Library.

Movies.

Some change in the movies schedule will be made after the first of July and we are not in a position now to give the full week's schedule. Tuesday June 29th, we will have "The Willow Tree" with Viola Dana. This is a Japanese play, and very much out of the ordinary. Edgewood has had considerable of the Wild Woolly West lately and this different play will be much appreciated.

Then Laugh!

Build for yourself a strong box,
Fashion each part with care,
When it's as strong as your hand
can make it,
Put all your troubles there.
Hide there each thought of your
failures,
Each bitter cup you quaff,
Lock all your heartaches within it
Then sit on the lid and laugh!

Tell no one else its contents,
Never its secrets show,
When you've dropped in your care
and worry,
Keep them forever so.
Hide them there so completely
That the world will never dream half;
Fasten the strong box securely
Then sit on the lid and laugh!

--The Mirror.

