

CHEMICAL WARFARE IN THE GREAT WAR

Colonel William H. Walker, Institute Professor, is Commanding Officer at Edgewood Arsenal

METHODS OF GAS ATTACK

"The present conflict has developed three methods of attack never before used in warfare: the submarine, the aeroplane, and toxic gases. New departments of the Government have been developed to care for these three arms of the service. None of the three is more important than the organization which supplies our army with both the poison material used in offensive work and the protection necessary to render it proof against the attacks of the enemy. Upon Edgewood Arsenal rests the responsibility of providing the millions of rounds of gas shell and other toxic material which our present artillery program demands. To be a member of this organization means that there is presented an opportunity for service excelled in no other activity in the Government; and with this opportunity for service goes a corresponding responsibility to render at all times the very maximum of effort from every point of view. The American people look to us to provide our men in France with a superior quality of the most effective material in an almost unthinkable amount, and in the experience of Edgewood Arsenal there can be no such word as 'fail.'"

Colonel Walker's previous training and career made him particularly well fitted for the position of Commanding Officer of Edgewood Arsenal. He is a scientifically and technically trained man, whose particular work has been the application of science and scientific methods to the industries, resulting in the development of new methods. As the work which he is now undertaking has been industrial chemical development, his previous experience has been of the greatest aid to its successful prosecution.

Colonel Walker is a graduate of Pennsylvania State College, class of 1890, with a B. S. degree, and received in 1892 the degree of A. M. and Ph. D. at the University of Goettingen, having specialized in chemistry and chemical engineering. In 1894 he accepted a position as Professor of Industrial Chemistry at the Massachusetts Institute of Technology, which position he held until the entrance of the United States into the war, having in this period risen to position as Director of the Institute's course in Chemical Engineering. He is one of the foremost men in the field of chemical engineering and chemical engineering training, and it is almost entirely due to his personal efforts that the Massachusetts Institute of Technology now possesses one of the best courses in chemical engineering training in the country.

In addition to his connection with college training, Colonel Walker has been constantly in touch with industrial chemical problems, and connected technically with several large concerns in a consulting capacity. He is identified with the development of high-class cut glass in this country. Again applying science to the industries, he invented and introduced successfully a method of annealing silver without oxidation.

When the necessity for chemistry in modern warfare was realized, Colonel Walker was one of the first to be called to this special service. He was appointed in November of last year as Chief of the newly organized Chemical Service

(Continued on page 3)

Reports of standing will be given out with registration material Saturday, December 28, and Monday, December 30.

Students purposing not to return should leave a memorandum at room 10-100 to have reports mailed to their home address after this date.

WALTER HUMPHREYS,
Registrar.

INSTITUTE AGAIN CLAIMS NAVAL UNIT BARRACKS.

On Thursday work was begun by employees of the Institute to bring the old quarters of the Naval Unit in Building 1 back to their original condition. Room 1-180 will again be the museum of the Civil Engineering Department, room 1-190 will be a lecture room, and the barracks on the third floor will again be furnished and used as drawing rooms. It is expected that the work will take about two weeks.

STUDENT TAX BALLOT

Ballot Must Be Filled Out Before Registration Material Is Approved

With the registration material for this term is a ballot on which the students are to signify whether or not they want the Student Tax to be levied for the coming term. Their registration material will not be approved until this ballot is filled out.

A word of explanation should be given here for the benefit of those who were not at Technology while the Student Tax was in operation. The Student Tax was founded by the class of 1917, and was accepted by the Corporation to be made compulsory with all classes entering in the fall of 1917 or thereafter.

The total tax for the term was to be four dollars, to be distributed as follows: \$1.25 for Athletics; \$1.50 for the support of the Walker Memorial; 36 1-2 cents for class dues; 8 1-2 cents for the Institute Committee; 50 cents for health insurance; 30 cents for the contingent fund.

As the Walker Memorial was not open to the students last year, only \$2.50 a term was charged; and this year, due to the organization of the S. A. T. C., the tax was omitted entirely.

This term, however, the Institute will return to normal conditions, and the money is needed to start the student organizations. Although in operation for only one year the student tax proved itself a distinct success. The athletic teams were better supported, and everywhere there was more unity and a more general interest in Technology affairs.

Without this tax we should have to abandon our swimming team, which has not been defeated for over two years, and Technology would lose its prestige in track, wrestling, and boxing. The students would lose the privilege of medical attendance, and the Walker Memorial would be closed to student activities because of lack of funds to support it.

With the beginning of next term undergraduate activities will start again. Nominations for officers of all the classes will open Monday, December 30, and all nomination papers must be handed in before noon on Friday, January 3, either at the information office or at the office of THE TECH in the activities building. Each paper must be signed by at least ten men of the same class as the candidate and men must not sign more papers than there are offices to be filled.

Elections will take place on Monday, January 6. The officers to be elected are President, Vice-President, Secretary, and Treasurer, of each class, and two men from each class for Executive Committee. All students will be eligible to vote, including the junior freshmen, regardless of their payment to date of class dues or Student Tax.

MAY WEAR UNIFORMS

Navy Authorities Announce Regulations For Clothes

Members of the naval reserve force honorably discharged from the service or released from active duty will be permitted to wear the uniform of their respective ranks, grades and ratings, for a period not exceeding three months after such discharge or release from active duty, Rear Admiral Wood announced. They may, however, wear the uniform at drills or meetings which they attend as members of a naval reserve force organization, when such meetings are called by proper authority, and at ceremonies such as parades, reserve force conventions, and memorial services which they attend as members of the naval reserve force.

They are instructed to keep the uniform in good condition and to wear it when proceeding from their homes to place of duty when called into active duty upon mobilization or for training in times of peace and when returning to their homes after release from duty. An enlisted man in the regular navy who has been honorably discharged from the service may wear his uniform from place of discharge to his home within three months after the date of his discharge.

LATIN-AMERICAN CLUB HOLDS ANNUAL BANQUET

The Latin-American Club of the Massachusetts Institute of Technology held its annual Christmas dinner at the Hotel Westminster. The banquet took place in a private dining room, beautifully decorated with the flags of the Latin-American Republics, the Technology pennant and the American flag appearing in prominent places.

At 7 the party took seats at the table, the shape of which was a "T" to honor Technology. The banner of Spain, the mother country, stood in the center of the table. Small Latin-American flags were placed opposite the representatives of their respective nations.

The striking feature of the event was the spirit of friendliness and companionship among the guests.

Special guests of honor were Rafael Cervino, Cuban Consul; F. Vala, President of the Harvard Cosmopolitan club, and F. Lobos, ex-President of the Latin-American club of Technology. The toastmaster was Alfredo de Zubiria, President of the club. Mr. Cervino discussed the fraternal relations of the Latin-American Republics. Mr. F. Vela urged a Latin-American Federation of students throughout the United States, which point he fully illustrated. Mr. Lobos gave a historical sketch of the development of the club. Other speakers were Dr. Montegudo, L. Giannatasio, J. de Noriega, J. Piza, and G. Gelt. V. Moller was the poet of the evening, and after reading a composition of his own, was warmly applauded.

A very agreeable surprise was furnished by A. H. Rodriguez, Treasurer of the club, who sang several Spanish "Canciones." These pleased the audience so much that he was earnestly requested to repeat some of the numbers.

The next number on the program was rendered by V. L. Valdes, Secretary of the club, who played selections by Chopin and Spanish composers. The assembly was so delighted with his playing that he was enthusiastically cheered.

A quartet sang selections from operas as well as Spanish and American popular songs, greatly contributing to the success of the evening.

During the entertainment toasts were offered for the prosperity and progress of Spain and the Latin-American countries and for the preservation of good relations among the republics of the western hemisphere.

Before dismissal the national hymns of the nations represented were played by the orchestra and sung by everybody. The celebration closed by the singing of the Marseillaise and The Star Spangled Banner, following cheers for Technology.

NEW FEATURES IN REGISTRATION WILL INCLUDE EXTRA CARD

Schedules Will Be Approved By Professors In Charge Of Courses—All Causes For Delay Eliminated

CLASSES WILL START MONDAY

Registration for the second term at the Institute will begin as previously announced on Saturday morning, December 28 and will be completed only after all the regular registration material has been filled out and accepted and an extra card, which is an innovation this term, has been handed in to a representative of the particular professional course in which the individual student may be registering. As another measure to facilitate a prompt start on academic work, each student will be required to submit his "enrollment card" for approval to a representative of his course. By this means, the men will be able to start work at once with a reasonable degree of certainty that their schedule will not be later changed by disapproval. It has been announced, however, that the approval by the course representatives cannot be considered as absolute.

ELECTIONS OPEN WITH NEW TERM

Nominations Start Monday December 30 and Close at Noon on Friday January 3—Officers to Be Elected For All Classes

FORMER OFFICERS RESIGN

The Committee on Undergraduate Activities has requested the resignation of all the men who were elected last spring, in order to commence with a clean slate. John J. Hines, vice-president, Frank L. Bradley, institute committee, and M. B. Freeman, executive committee, all of the class of '20, and Lawrence W. Trowbridge, vice-president, and William R. Barker, executive committee, of the class of '21 have complied with this request. Since the remaining officers were not registered at the Institute during the last term the Committee has assumed that these men automatically resigned on leaving Technology.

The coming elections are in a manner temporary, since the men will hold office only until the regular spring elections, when the men will be eligible for re-election.

USING DEHYDRATION.

The industry of dehydrating vegetables in this country has been made use of by the Quartermaster Corps of the Army for the protection of the American soldiers in France. General Pershing, to conserve tonnage and guarantee against any possible shortage of vegetables suggested the drying of vegetables as a reserve for his men. His suggestion has been acted upon.

Successful dehydration involves much more than merely taking the water out of the fresh vegetables. The processes by which this extraction of water can be accomplished without injury are complicated. The advantages of dehydration are that vegetables so prepared will keep indefinitely, are partially ready-prepared, are packed conveniently for handling and are so shrunken in bulk that they occupy only a small portion—about one-sixth—of the shipping space which the fresh vegetables would require.

The Quartermaster Corps has made purchases for the army of dehydrated potatoes, carrots, turnips, celery, onions, cabbage, various greens and purchases of dehydrated soup mixtures.

The introduction of the new plan of registration which includes one new card is regarded only as a war time measure and will probably be only a temporary arrangement. Only men taking courses above the first term will be required to fill out this extra "consultation card" and it must tell all subjects taken in previous years which were not successfully passed. This card will be kept for reference by the professor in charge of the course which the man may be taking.

Every student who registers will be required to furnish three photographs of himself provided they did not comply with this regulation last term. Mr. Riley, the official photographer, will be back in room 3-115 to do this work and the students may sit there for pictures. A charge of twenty-five cents is made. To help in the registration, arrangements have been made by Professor Miller to have tables placed in the steam engineering laboratory where the students may fill out their cards.

Beginning Monday morning, when all academic work at the Institute will begin in full swing, Technology will resume its former schedule of classes from 9 to 5 although calisthenics for the freshmen will be at 8 in the morning. With the exception of the first year, the term just completed will not be repeated in its previous form although it will be possible for those men who failed to do satisfactory work to make special arrangements to take some of the courses again. A class of junior freshmen will enter the Institute and there will also be classes in terms 2, 4 and 6 which will once more become the first, second and third years.

LIFE INSURANCE MEN SUPPORT GOVERNMENT.

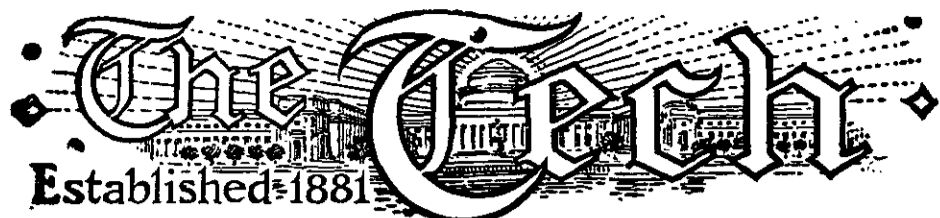
The life insurance men of America, through their representative national organizations, have pledged their full endorsement and co-operation in carrying out the Government's program for the continuation and conversion of United States Government insurance on soldiers and sailors. The following resolution was adopted by the Association of Life Insurance Presidents:

"That the Association of Life Insurance Presidents, in annual conference assembled, hereby expresses its opinion that it is to the advantage of every soldier and sailor to continue to keep in force such insurance as he may have effected under the Federal War Risk Insurance Act, and thereby requests all life insurance companies to impress upon all members of their home office and agency organizations to do everything in their power to urge upon such soldiers and sailors to continue their government life insurance and to recommend them to convert such temporary government insurance at the earliest possible opportunity into one of the permanent plans provided for by the War Risk Insurance Act."

The cooperation of life insurance com-

(Continued on page 4)

A short meeting of the Technology Branch of the American Institute of Electrical Engineers will be held on Tuesday, December 31, 1918, in room 10-267 at 1.30 p. m. for the purpose of reorganizing the Branch. All former members and other students interested are invited to attend.



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Although communications may be published unsigned if so requested, the name of the writer must in every case be submitted to the editor. THE TECH assumes no responsibility, however, for the facts as stated nor for the opinions expressed.

The Editor-in-Chief is always responsible for the opinions expressed in the editorial columns, and the Managing Editor for the matter which appears in the news columns.

IN CHARGE OF THIS ISSUE

H. D. Folinsbee, Oct. '20 Ernest N. May, Oct. '20

SATURDAY, DECEMBER 28, 1918.

ALL OUT FOR ATHLETICS!

THE Institute is firmly established as an intercollegiate contestant in the various athletic activities: track, wrestling, and swimming. It is possible to uphold the Institute record only by the solid co-operation of the student body. Our teams are not made from prep school stars, but from men whom our coaches have developed. The keynote to the Institute success is team work, first and last. We have won two American relay championships, two New England championships, a New England cross-country championship, all in the last three years. Our swimming team has not been defeated in the three years, and in that same period of time it was only tied once, that by the midshipmen at Anapolis. The wrestling team has been just as successful. All these teams want men who will work and who can be depended upon. Let every man that likes athletics come out, and the Institute will be up among the leaders in 1919 as she was in 1916-17-18.

"THERE'S MUSIC IN THE AIR"

WITH the opening of the new term, when all activities and pursuits at the Institute will be once more on a normal basis, attention might well be directed to the inauguration of a Technology band. The possibilities of such an organization may be seen from the progress made along these lines in the naval unit last term when, with little time for practise, a band which furnished music at smokers and dances was formed. Many of the men who played in this navy band will return to the Institute this term, and it may be safely said that there are hundreds of others who last term were members of the army unit or were civilian students here who have ability to play band instruments. Other colleges of half the size of Technology support bands of some repute and it would be a spot on the Institute's escutcheon to admit inability to do likewise. After the formation, the possibilities for a band at smokers, football games, and other athletic events as well as for social functions are unlimited.

THE ELECTIONS

NOW is the chance for every man at the Institute to do his share in the undergraduate reconstruction by taking part in the coming elections to be held Monday, January 6. As class dues or the student tax will not be collected until after this time, every regular student will have the privilege of suffrage. There is, therefore, reason to expect the undergraduate body to vote 100 per cent strong and the person who does not vote will have no excuse except the very deplorable one of laziness.

The men who were elected to office last spring, and who are still in school have shown their Technology spirit by resigning their positions in order that the term may start with a clean slate. This action was thought advisable as it was uncertain just what officers would return next term and by cleaning the slate no one can complain of unfair treatment.

It is very probable that these men, whose names are given in the article on elections on page 1 of this issue, will again run for office. THE TECH urges that these men who have shown themselves such loyal Technologists be supported at the polls this time.

PERSONALS

News of the death of Capt. Karl C. McKenney '12 has just been received by his parents, Lewis T. and Katherine C. McKenney, 39 Chase Ave., Auburndale, Mass. He died in France Oct. 30 of pneumonia.

Capt. McKenney was born in Charleston, Me., in 1890. He was a graduate of the Wellesley High School and of the Massachusetts Institute of Technology, in the Electrical Engineering Department, class of 1912.

He had been in the employ of Stone & Webster of Boston four years, in Houghton, Mich. and one year in the Public Service Corporation of Newark, N. J.

He enlisted in August, 1917. After three months at an officers' training camp, he received a commission as Captain and was attached to Battery E, 49th Artillery, C. A. C. He was ordered to Fort Andrews, Boston.

In April, 1918, he was placed in command of Fort Warren, which position he held until ordered to Camp Eustis, Virginia, to prepare his troops for overseas.

The fact that Capt. McKenney was placed in command of Fort Warren, at that time the headquarters for all the

forts in Boston Harbor thus placing him at the age of only 27, and scarcely six months in the service, in charge of the defenses of Boston at a time when the Nation was at war, with enemy submarines along the Atlantic Coast, testifies to his ability.

Capt. McKenney was married in February, 1918, to Miss Virginia Courtney, daughter of Dr. Courtney, a prominent dentist in Hancock, Mich.

He was a member of the Wellesley Lodge of Masons.

The following is a tribute from the colonel of his regiment just received:

"He died like the brave soldier that he was. We respect and honor the memory of Capt. McKenney. We feel that he gave his life to his country as truly as though he had died on the field of battle.

"The courage with which made the supreme test is an example to us all. We are proud to have had so noble an officer as a member of the 49th Artillery.

"Monte J. Hickok, Lieutenant Colonel, C. A. C."

TECHNOLOGY TO SUFFER NO LOSS.

Equitable financial adjustments will be made by the war department with educational institutions which have suffered loss by reason of the demobilization of the students' army training corps. The announcement that such an arrangement had been reached was contained in a letter from Maj. Ralph Barton Perry, secretary of the committee on education of the general staff, made public by the Merchants Association which had instituted an inquiry into the subject.

The Massachusetts Institute of Technology Cambridge

RICHARD C. MACLAURIN, M.A., Sc. D., LL.D.

President

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY offers courses in Civil, Mechanical, Mining, Electrical, Chemical, Sanitary, and Architectural Engineering; in Chemistry, Electro-chemistry, Biology and Public Health, Physics, Geology and Naval Architecture, and in Engineering Administration.

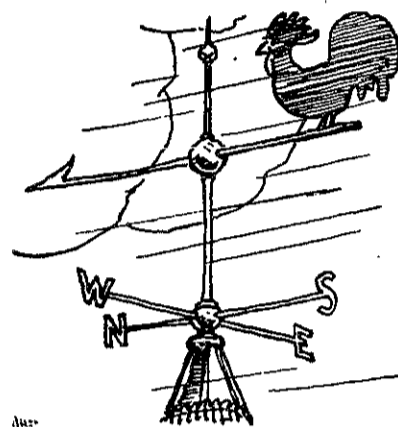
To be admitted to the first-year class, applicants must have attained the age of seventeen, and must present records of certificates grade in Algebra, Plane Geometry, Physics and English, and passing grades in six more units of preparatory subjects.

Graduates of colleges and scientific schools of collegiate grade are admitted without examinations, to such advanced standing as is warranted by their previous training.

A unit of the S. A. T. C. is established at the Institute for both the Army and the Navy.

Correspondence should be addressed to Prof. A. L. Merrill, Secretary of the Faculty.

Which Way Is The Wind Blowing at Technology ??



IS THE OFFICIAL WEATHERVANE OF THE ALUMNI OF TECHNOLOGY. IT GETS WIND OF HAPPENINGS "OVER THERE." IT WILL TELL YOU WHEN YOUR CLASSMATE DOWNED HIS FIRST BOCHE FLIER. SEND A DOLLAR AND A HALF FOR SIX MONTHS' SUBSCRIPTION.

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GAS WARFARE

Gases may be employed either in the form of "gas clouds" sent against the enemy's trenches by means of a favorable wind or liberated in the trenches by means of hand grenades, rifle grenades, bombs and snouts.

The gas cloud attack is brought about by the liberation of gas from metal containers buried under the parapets of the front line trenches. Tubes from these containers provided with a stop-cock attachment, are carried up over the parapet and through them the gas is liberated, these containers are usually placed in batteries of three or four at intervals of about thirty yards apart.

The gas in them is in a liquid state, but upon being released by turning the stop cock it volatilizes rapidly and escapes in the form of a dense vapor. This escape of the confined gas is accompanied by a low whistling sound which is frequently the only warning the opposing side has of the coming attack. The gases used in cloud attacks are heavier than air, and when released under proper atmospheric conditions, move, or rather appear to roll along the ground, usually in the form of a dense greenish yellow cloud, towards the lines of troops to be attacked, and when it reaches the trenches it settles down into all parts of them, penetrating the dug-outs and bomb-proofs, and remaining sometimes for several days.

The success of the "gas cloud" is dependent on the atmospheric conditions. A calm night or day, with a gentle wind blowing in the direction of the enemy is essential. A strong wind distributes and disseminates and a variable wind is not to be depended upon, as gas may be blown back to your own trenches. Gas attacks have been made with the wind velocities varying from 3 to 15 miles per hour, i. e., from 1 1/2 to 7 1/2 yards per second. A wind between 4 and 8 miles is the most favorable. With such a wind gas would reach trenches 100 yards away in 22 seconds. Gentle rain has no effect on the gas, but a heavy rain washes it down. Fogs have but little effect, and may be taken advantage of to conceal the approach of a gas cloud.

While the gas cloud form of attack, if successful, can produce a number of casualties, its operation is uncertain, and its approach can be anticipated if proper watchfulness is maintained. Efficient measures can be taken by trained troops to nullify its effects, and its military value therefore is probably not so great as when it is used in shells, bombs, hand grenades, etc. It is, however, often used to precede an infantry attack.

Gas used in shells has a much more definite military value than gas used in clouds. The gas shell has in fact become one of the most important weapons in modern warfare, and will always be of importance in future wars. At present 20 per cent of all the shells used on the western front are gas shells.

They fulfill a double purpose: they are excellent in forming a barrage to prevent the bringing up of supplies and re-enforcements, and they are most excellent in silencing artillery positions. Their method of employment as described to me recently by Major Williams, U. S. A., was like this: A continued barrage fire was kept up behind a certain artillery position for 24 hours. Then a cloud fire was kept on the artillery position itself for 12 hours. The infantry attack was then made and there was no fire at all from the artillery position. When this was taken, it was found that most of the men there were dead and those that survived were too weak to work the guns, the protective power of their masks had been exhausted by the long exposure to gas. They also use Lachramatory types first to cause tearing, vomiting, etc., then follow by Asphyxiating types.

"Unlike loud gas, gas shells can be used in wind blowing in any direction, the strength of the wind however has considerable influence on the effective use of the shells. A wind of 7 miles per hour or less is as high a wind as is practical for their effective use."

ARMY TOOK OVER NITRATE SUPPLY.

The reason why the farmers of this country received only 66,778 tons of nitrate, instead of 109,000 tons obtained through the \$10,000,000 appropriation made by Congress was revealed for the first time, by C. H. McDowell, director of the chemical division of the war industries board.

The remaining 42,000 tons of nitrates were commandeered by the war department when the German drive of the spring became a menace. Military necessity has up to this time kept the details a secret.

In telling them Mr. McDowell remarks that through the sacrifice of the needed fertilizer ingredient, the planters were

contributing to the supply of explosive on the French front, and thus aiding materially in winning the war.

There will be plenty of nitrate for fertilizer for the spring planting of 1919, for the importers, who were required to turn over their consignments to the war department, were released from that obligation on the signing of the armistice, and are now free to sell the nitrate to fertilizer manufacturers.

Mr. McDowell in a statement given out today said:

During the entire period of the war all needed nitrates was secured and there was no let-up in the manufacture of war materials depending upon this article."

CHEMICAL WARFARE

(Continued from page 1)

Section with the rank of Lieutenant Colonel. In March of this year he was promoted to the rank of Colonel and placed in charge of offensive gas development as Commanding Officer of Edgewood Arsenal. Under his command this project has made rapid progress, and he has proven himself to be "The Man" for the job.

One is first impressed with his logical thought and immediate application of known basic principles to new problems. He is a man decisive in action, untiring in energy, and characterized by his "pep" and vigor.

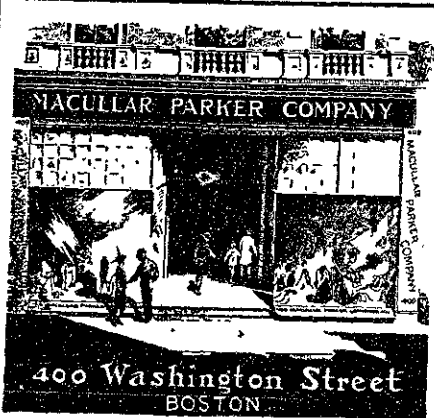
Colonel Walker is Commanding Officer of the largest gas producing unit of the Allies, and is directly responsible for the wonderful progress of this Arsenal.

WAR SERVICE STATISTICS WILL BE DISCONTINUED

Constant changes among the Technology men in the service as a result of the cessation of hostilities has led the Massachusetts Institute of Technology War service auxiliary to discontinue their statistics. The last of these which included data up to December 21 shows a total of 2657 men in service. Included in this number are 1742 officers, of whom 42 are lieutenant-colonels or higher. Of the Technology men who were in the service, a total of 73 deaths have been reported, while 28 men have been cited for bravery.



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WHY BELONG TO A COOPERATIVE STORE SUCH AS THE TECHNOLOGY BRANCH?

An extract from an article in *Printers Ink* in the issue of May 16, 1918:

"These are the advantages which cooperation has had. First of all it is honest. Not that cooperators are normally superior to the common run of humanity, nor that private trade is characteristically dishonest. But under cooperative enterprise the incentive to fraud is entirely removed. The store manager, the wholesale director, every official is on a salary basis and were he to increase the income of the business through deception or overcharging, the surplus would only go back whence it came, into the pockets of those who had been defrauded, in the form of the rebate on purchases.

"Thus the cooperative store members' mind is at rest in his own store. He knows that the man behind the counter can gain nothing by misrepresentation.

"The second advantage cooperation had over private business is the cash rebate. Cooperative stores probably find it harder to get on their feet than private stores. But once successful, the cooperative is able to return its whole profit, minus the tax for expansion, to its customers. No retailer can do that."

Last year's dividend or rebate was 10 per cent.

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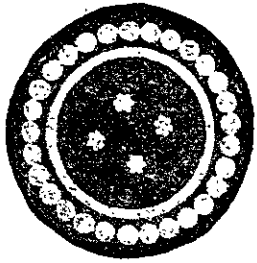
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COLONEL'S EXPOSTULATION.

Praises are continually being received of the energy and spirit of Technology men in the war. The following was recently published in "The Chemical Warfare" about Col. Wm. H. Walker:

The Colonel is the only man we know of who has worked out "economy" to a basis of scientific efficiency. Doc Hoover will be wild with jealousy when he reads this because he didn't think of it first.

You remember the guy who used to batter the polish off the mahogany with his fist when he was trying to make you believe something. Not the Colonel! He has it doped out differently. He carries a fly swatter. Swat! The fly who exposed his (or her) foul germ-laden back is no more; and the Colonel has driven home his argument with all the violence necessary for the occasion. (He says that the fly don't mind how hard you hit him if you hit him.) And this little fly swatter is very effective in punctuation too; Miss ———, will you tell every swat means period.

Now that the cat is out of the bag, get your swatters ready, for that is sure to be the next order for conservation. You will have to go some to catch up with the Colonel. His batting average is up to .978, according to the assassinated news.

A POTASH DISCOVERY.

The German potash propaganda, so successful among American farmers in the ten years before the great war, overleaped itself as did other German propaganda. It is pretty certain that many farmers in the Eastern States, especially those growing potatoes on loam soils, were persuaded to buy much more potash in their fertilizers than was warranted from the standpoints of potash shortage in the soil or immediate profits in increased crop yields.

Soils being no respecters of persons or sources of potash, absorbed and held back from immediate crop utilization or leaching in the drainage water a large fraction of the superfluous potash. Hence soils rarely showed by loss of vigor and in decreased yields a potash hunger until this year, when, after three seasons of reduced potash rations, many of our fields showed clearly that potash had become a chief crop limiter.

In a lecture by Mr. Evans of Long Island, at our Friday afternoon and evening popular free lectures in agriculture, a report was made of a fertilizer test on sandy soil in Nassau County. In 1917 a fair yield of potatoes on normal vines had been gathered. But in 1918 a yield of fifty bushels of low quality and small size potatoes per acre on diseased vines were dug where no potash salts were applied. A yield of 150 bushels per acre of marketable grade from healthy vines were dug where a small amount of potash fertilizer had been applied at planting time. The fields were side by side on uniform sandy soil.

If unwittingly the Eastern farmers of sandy soils had not yielded to the German potash "penetration" scheme, it seems to me we should have felt potash shortage keenly, and so feeling would have given large measure of a comfort to the enemy." If, on the other hand, German trade grabbers had been satisfied with a plain measure of business they would have had the satisfaction of realizing that in 1914-18 they did have a monopoly of potash. Now this monopoly is doubly broken by armistice and by our discovery of ourselves.

O. S. MORGAN,
Professor of Agriculture,
Columbia University, Dec. 16, 1918.

LIFE INSURANCE.

(Continued from page 1)

panies is typified by the following bulletin issued by one of the largest life insurance companies in the United States to all its agents and branches:

"Now that demobilization is setting in, it is necessary to once more refer to Government Insurance on the boys in the Army and Navy.

"As you know, the insurance now carried by the soldiers and sailors with the Government, is Term Insurance. The boys can carry this insurance until five years after the declaration of peace, at

the end of which time, the insurance ceases. During these five years, all soldiers and sailors who have taken out Government Term Insurance, will be permitted under the Act of Congress, to exchange the Term policies for regular Life Insurance policies on the whole life plan. Limited Payment Plan, or Endowment plan. The premium rate will be according to the attained age of the insured at the time of exchanging the Term Insurance for the regular insurance. The government rates for this regular insurance will be probably the net rate table rates, which means a rate without loading for expenses, or in other words, a lower rate than any life insurance company can do business on.

You are hereby instructed that it is the duty of every agent of this company, as well as every officer and employee, to advise any soldier or sailor holding Government Insurance with whom you may come in contact, to apply to the Government for an exchange of his Term policy, to one of the regular forms of policies, just as soon as the Government is ready to make the exchange. No one but those holding Government insurance at the time peace is declared will be permitted under the act of Congress to obtain permanent Government Insurance. It is our duty as Insurance men to frankly tell the boys of the Army and Navy what a favorable opportunity they have for securing permanent insurance with the Government at rates which cannot be duplicated elsewhere.

"Agents of this Company are expressly prohibited to switch Government Insurance carried by the soldiers and sailors to insurance in this or any other company. When any soldier or sailor has taken permanent insurance for the full amount which he is permitted to take with the Government, he can of course be solicited for additional insurance in this Company."

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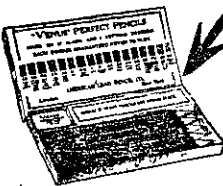
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