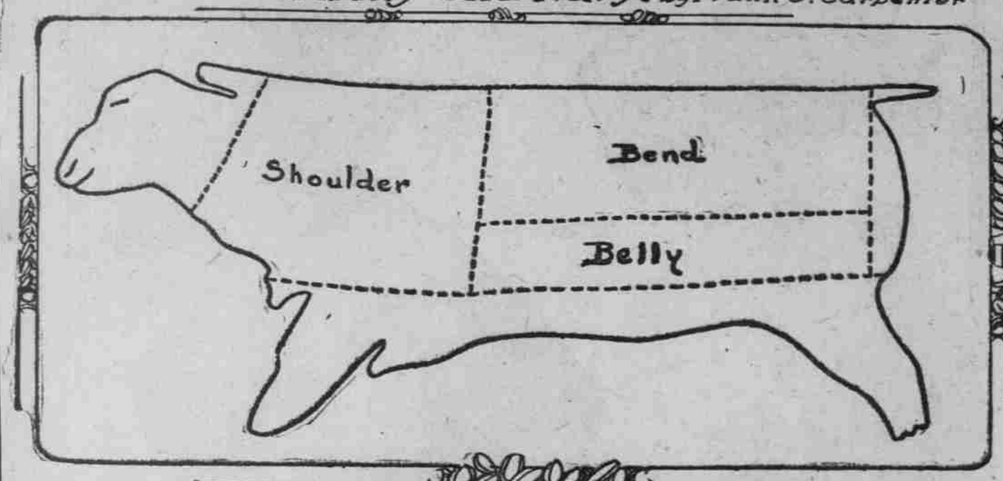
MOBILIZING THE LEATHER INDUSTRY

Millions of Hides and Skins Required for Army and Navy.

By Frank G. Carpenter



Side of Leather Divided as to Quality. The New Pershing Shoes Are Made From the Bend Only. It is the Best Part of the Hide.

Cleaning Hides in Old Style Tannery.

French Infantry Shoe.

Some Army Uses for Leather. (1) Austrian Cavalry Boot, (2) Portuguese Legging, (3) Prussian Infantry Boot, (4) Wellington Boot, Used by the British.

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BOSTON, Mass.—I have figured out the cattle needed to furnish the shoes already supplied to the Army. They are so many that if you could bridge the ocean by a roadway 40 feet wide all the way from Boston to France the animals would fill the bridge and reach on to the trenches. In this instance the cattle could be driven nose to tail 20 abreast and each score allowed 10 or 12 feet of the length of the roadway. By the Government specifications we can get only five pairs of shoes out of each hide, and the number of pairs so far made is in the neighborhood of 30,000,000.

In addition to this is the great amount of leather needed for saddles and leggings. This means the consumption of millions of cattle, and also multitudinous pigs, for the best leather for saddles and leggings comes from the hog.

And then there are the gloves which the soldiers use. They are made of horse hides and colt skins. There are also the jerkins or vests which the airmen, the Navy, and even the boys in the trenches must have to keep out the cold. The jerkins are made of sheepskin with the wool on. They are the warmest of the garments possessed by the soldiers.

Furthermore, we must have vast quantities of leather of one kind and another for the harness of the cavalry and straps for the artillery and Army equipment. A great deal is used in automobiles, motor trucks and in the machinery that goes to the battlefield. In fact, the war now demands every class of good leather for one purpose or another; and it comes from the ox, cow and calf, the horse and colt, the sheep and the lamb, the goat and the kid, as well as from the water buffalo, and the hog, and even the seal, alligator and kangaroo.

In addition to these items are the many varieties of leather used in the industries making munitions and supplies and all sorts of goods for the Army and Navy so that skins of every description have a part in the war.

All of this leather has to be made in the American tanneries. We have hundreds of them and they handle each year the skins from which almost $1,000,000,000 worth of leather products are made. They tan something like 20,0000,000 hides to produce the heavy leathers, and about 100,000,000 other skins from which the lighter leathers are made. About one-fourth of this leather comes from animals killed at home and the most of it from the meat packing houses which are today the chief source of domestic supply. The number of cattle so killed would fill a bridge twice as long as the one above mentioned, and in addition we get the skins of more than 5,000,000 calves, 14,000,000 sheep, about 300,000 goats and more than 100,000 horses and colts.

All these taken together make a total of about $4,000,000 animals, whereas the number of hides and skins which go through the tanneries are four or five times as great. The balance is imported and we pay for it in the neighborhood of $160,000,000 a year. At least that is what we paid for the amount we imported in 1916, the year before we entered the war. During that year we brought in from abroad the hides of 7,000,000 cattle and those of 4,000,000 calves. The goat skins imported numbered 52,000,000, and the hides of horses and colts represented an equine population of 500,000. The sheepskins from abroad weighed more than 100,000,000 pounds, and we had more than 1,000,000 pounds of raw skin from kangaroos. This raw material came from all the countries of the world excepting those with which we are at war and those which no ship can now reach. About one-fifth of the hides were from Argentina and Uruguay. The sheepskins came from Great Britain, China and India and a large number of them were from the flocks of South Africa and New Zealand. The kangaroos came from Australia, for the kangaroo is found nowhere else on the globe. The horse and colt skins were chiefly from South America and British ports.

The raw materials of the leather industry come mostly from the 21 countries at war with Germany. The only question of getting the material is ships. There are large supplies of hides in South America. We have to have ships to get them to the United States. There are large supplies in China, and the same is true of Africa and Australia. They have to be sent over thousands of miles of water to our ports.

At present the United States and Great Britain have pooled their interests in the buying of hides. They are competed with by Germany, which is buying raw materials needed for warfare in all the countries of the world. This is notwithstanding they have no means of getting them to Germany. It buys them to keep them out of the hands of its enemies. It may have to sell the hides later, for they will not keep indefinitely, and, if so, it will be at a high price.

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Just now the buying of this vast product intended for leather is more or less directly in the hands of the Government. Uncle Sam is the chief customer for all kinds of raw materials, and you might think it would be easy for the men furnishing our leather to get a big rake-off from every Government order. It is not. The War Department has a board of hide and leather control, and its dollar-a-year employes include the leading hide and leather men of the country. In Washington is also an organization known as the tanners' council, which came together as soon as we entered the war to co-operate with the war industries board and the War Department in the purchase of skins both at home and abroad and in all importations of leather from other parts of the world. This council represents many branches of the leather industry. It has no capital stock, and it pays no dividends. It is not a buying or selling organization, and its only object is to furnish the Government with information as to the supply of leather materials both at home and abroad, and to aid it in placing contracts which will eliminate exorbitant profits and most efficiently mobilize the leather industry for the work of the war. The council costs the Government nothing, and it is maintained at the expense of the tanners. It is one of many patriotic institutions of the kind which have come to the support of the country in this time of need.

All of the Government orders for leather are fixed upon the advice and information of associations like this, and every attempt is made to get the best material at the lowest possible cost. In order to show you how carefully the Government works, I will cite some of the specifications for the leathers required for the shoes of the soldiers. Take the new Pershing boot, of which we are now making a million and a half pairs every month. The requirements for the sole leather demand that it be made of good, sound, dry or green-salted fine-haired hides. It must be firm, solid and well rolled. It must be properly tanned; filled with good vegetable tanning, and when finished, it must be acceptable to the Government.

The specifications state just from what part of the animal each kind of leather must come. This leather comes from the bend, a little section of the back and side of the beast so small that only five pairs of shoes can be cut from each hide. You may have heard of sides of leather. The larger skins are cut along the back into two halves or sides, and each side is divided into the shoulder, the bend and the back. The bend is the best portion of the back behind the shoulder. It makes the firmest and best leather of the entire skin, and is devoted chiefly to the higher grades of shoes. The bend for the Pershing shoe must be not more than fifty-two inches long from the root of the tail and not more than twenty-eight inches wide. The wording is such that there can be no question is to the character of material.

It is the same with the orders for trench shoes which have already been issued. The specifications for them are so many that they would fill about three columns of this newspaper. They relate to the kinds of leather used for the uppers, for the outer soles, middle soles and inner soles. They specify the leather for every part of the shoe, including the heels, "which are to be from oak, union or hemlock sole leather of good quality, free from holes or blemishes which will affect the wear." They specify how the leather is to be cut, and give an infinite detail of technical requirements which would not be understood by the man outside the tannery and the factory.

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This letter is to give you some idea of the leather industry which is now so important in this time of war. Leather has always been valuable in warfare. Away back in the stone age bowstrings were made of skin, and all the armies of the distant past had leather shields. It was with a sling made of leather that the great Goliath was slain by the boy shepherd David; and, long before that, man had learned how to cure all sorts of skins. We know they made shoes at the time of the Pyramids, and that the Egyptians tanned leather long before the Israelites came to toil on the banks of the Nile. In China specimens of leather have been discovered in company with other relics that prove them to be over three thousand years old, and we know that the Romans tanned their leathers with oil, almonds and bark. The first men who came to America found the Indian wearing skins cured with buffalo dung oil and clay; and as soon as our forefathers settled here they began to build tanneries and make leather for sale. Three years after the Pilgrims set foot on Plymouth Rock, Experience Mitchell and Francis Ingalls came from that place to Lynn and Bridgewater and put up tanning establishments. Experience Mitchell called his tannery "Joppa" in memory of the port of Palestine, where Peter stayed over night at the house of Simon the tanner, and after what was probably a meatless day had his wonderful vision. You will find all about it in Acts x:5-16.

Shortly after the establishment of these first tanneries Roxbury, now a part of Boston, became a tanning center, and other tanneries were established throughout New England until now there are hundreds of them, and the tanneries, shoe factories and other leather-making plants of one kind or another employ more than 100,000 workmen and produce something like $400,000,000 worth of leather goods per annum. Tanneries were established in the colony of Virginia almost as soon as in that of Massachusetts, and as the country grew they spread throughout the United States. They are now everywhere and the establishments making leather goods of one kind or another are in the neighborhood of 7000. The value of the annual product is more than $1,000,000,000 and the capital invested in the industry is perhaps $800,000,000. The business has been widely diversified and it is carried on through a long series of complicated machinery, each branch embracing a vast number of inventions and new processes of one kind or another.

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Every army has its own footgear. I have before me photographs of that worn by the armies of Europe now in the collection of the United Shoe Machinery Company of Boston. The shoes and boots weigh from three to five pounds a pair and they take an enormous quantity of leather. The new Pershing shoe weighs about five pounds per pair. In another letter I shall describe it and show how it is made. The hides and skins we use in our shoes for the soldiers are largely imported. Many of them land at New York, although a large number are shipped to Boston and some to San Francisco, New Orleans and Chicago. They go from the ports to the tanneries, where they are cured and made into leathers of one kind or another.

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The methods of tanning have greatly changed within recent years. The tanneries of colonial days were much like a small country grist mill. The tanning mixture was oak and hemlock bark cut from the trees of the forest nearby, and ground in a little iron mill moved by a horse or mule. The hides were soaked in water to soften them, and after that the hair and bits of fat were scraped off. They were then tanned by putting them in pits with layers of ground bark between them. After that water was let in, and the tanning material soaked from the bark mixed with the water went into the hide, giving it the preservative quality which makes the difference between raw skin and leather. In such tanning the hides were often allowed to soak for months. When tanned they were taken out, dried and finished as the needs of the market required. The tanneries of today do most of their work the same way, but everything is on a large scale, and modern machinery is used. There are special machines for almost every process and for every variety of tanning. There are machines for manipulating the hide and for taking off the hair. A leather splitting machine was invented when Thomas Jefferson was President, and now we have splitting machines that can be adjusted to the thousandths of an inch. By means of a belt as it whirls around the thin steel knife sharpens itself on an emery wheel. It will split a hide into sheets as thin as paper if required. There are also measuring and cutting machines, which relieve the tanners of mathematical computation. Machines for stoning, polishing and finishing leather were produced as early as the time of the Mexican war, and patent leathers and pebbled leathers were first made shortly before the Civil war.

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The materials for tanning have changed, and certain new kinds of vegetable extracts are used which do the work more quickly than the bark of the oak or the hemlock. There is an acorn from Turkey and Greece which has three times as much tannin in it as the strongest oak bark, and there are pods of certain South American trees which are largely used to make leather. Many other tanning materials come to the factories in the form of extracts which can be readily and cheaply mixed with water, and there are also pastes and solid extracts which can be dissolved by heat and used for tanning. Sumach is also largely employed. It is found throughout the Southern states and also in Italy. Gambier is also a tanning shrub which comes from the Malay archipelago. The extract is made by boiling the shrub, and it is sent to the market in blocks and tubes. Quebracho is another tanning material which is sold as an extract containing from 60 to 70 per cent of tannin. This comes from a tree that grows in the wilds of Paraguay. I have seen men cutting the forests for that purpose and shipping the wood to market. One cutch comes from the mangrove tree of the swamps of Borneo, and there is another cutch which is obtained from the acacia tree of East India.

In fact, we now get our tanning materials from all parts of the world and the different varieties are used in one way or another for making the different leathers.

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We also do a great deal of chemical tanning, although this is chiefly employed for small skins and light leathers. At present two-thirds of the glazed kid is tanned by the chrome process. This consists of treating the skins with bichromate of potash to which some hydrochloric acid is added. By this method skins may be tanned within a few hours and the leather produced is extremely soft and pliable and of a close texture. The process was first used largely at Philadelphia and it has aided in making that city one of the chief leather manufacturing centers of the world.

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Another process of curing leather which is largely used for certain varieties of skins is tawing. This means treating them after removing the hair to baths of bran and water, and after that to one of alum and salt, and then covering them with a paste made of flour and the yolks of eggs mixed with water. The eggs go into the leather and cure it. The hide is then dried, and afterward worked and pulled back and forth to stretch and soften it. It is finally smoothed with a hot iron. Some glove leather is made in this way.

The demands of the war call for more or less leather which has been treated after the chamois process. In this the skins are thoroughly cleansed with lime, drenched with bran, and while still wet are oiled with fish, seal or whale oil. The oil works into the skin, driving out the water, and it becomes a part of the material, making it soft and spongy. Wash leather is prepared in this way and for this the flesh halves of sheepskins are used.

The most of the chamois is made from the skins of deer, elk, buck, goat, sheep and calf, the first three being the best.

Modern Poultry Culture

There is no excuse for mite-infested poultry houses or lousy chickens, when a few hours' work with whitewash, insecticide and dusting powder will kill these parasites and improve conditions generally. Following are some valuable suggestions for this work.

BY FRANK C. HARE,
Poultry Husbandman, Clemson College, S. C.

NOTHING detracts so much from the appearance of a poultry house as dark, filthy walls covered with cobwebs and dust. The place is unviting to ourselves, and to the fowls that make it their home. Since much of the grain fed poultry is scattered in the litter on the floor of the poultry house, we have another reason why the inside of the house should be bright and sanitary. The fowls will waste grain thrown in the litter of a dark house. A coat of whitewash on the walls will quickly change this dark house into an attractive home for the inmates.

But, before the whitewash is applied, let us first catch all the fowls and confine them in coops, boxes or barrels, where we can quickly handle them later. Then clean up the drop board, remove the litter, dig up the floor and level it again and take out all fixtures that are movable. Sweep down the walls. If there are many crevices and cracks between the boards near the roosting quarters, I would recommend covering this portion with good heavy building paper. I prefer an unsized paper to roofing paper, because the latter cannot be satisfactorily whitewashed.

An Excellent Whitewash.

I have tried many different ways of mixing whitewash, and have found the following scheme the most satisfactory: Slake two pecks of lime with boiling water, adding the hot water slowly and stirring constantly until a thin paste results. Then work into the lime paste a gallon of salt until the mixture is smooth. Now add water to bring the salted paste to the desired consistency. Just before applying the wash, add a handful of Portland cement and a teaspoonful of bluing to each pail of the wash. Mix well. The cement makes the wash stick to wood, stone, brick or concrete, and not rub off, while the blueing counteracts the gray color and the result is a snow-white wash.

This whitewash is excellent for either indoor or outdoor use. It sticks on, wears well, and it can be applied either by a sprayer or brush. Some years ago I tried mixing a little crude carbolic acid with the wash to increase its insectidal qualities. The acid made yellow streaks on the wall, and, while better results might be obtained by adding a small percentage of some coal-tar or other insecticide, I can see no object in doing this.

The little, bloodthirsty red mite is the only parasite that lives in the poultry house. He makes his home in a crevice in the roost, in the space between the end of the roost and the roost support, and in the nest and nesting material. Whitewash does not kill this parasite. The most popular liquid used against him is common kerosene or coal oil. All through the South you can see colored women with rag and kerosene washing the roosts and adjoining places where red mites reside. The kerosene can be greatly improved by adding half a pint of crude carbolic acid or cresol to each gallon of oil. This mixture will kill every red mite and their eggs.

A less expensive mixture that will exterminate mites is a 5 per cent solution of cresol, or any of the commercial liquid lice killers, in water. Buy a quart or larger can from your druggist or seed house, and also a hand sprayer. The latter costs from 50 cents to $1, and is excellent for spraying. Some time since I bought a four-gallon knapsack sprayer with an extra whitewash nozzle and use it for spraying the cresol mixture and for whitewashing. I would not be without it, and while the cost is greater than the small hand sprayer, it is much more convenient and satisfactory. One pumping of air into the tank will give a good spray for 15 minutes.

If you have some one to help you and can carry on the whitewashing and the mite eradication at the same time, then I would advise confining the fowls that occupy the house to coops, boxes or barrels until this work is over. If the whitewashing and spraying is thoroughly done, there will be no parasites in the house.

The Best Louse Killer.

Until a few months ago I did not think it possible to completely wipe out all the lice and lice eggs on fowls with one application of any insecticide. This has been possible with mites, but not with the body lice of poultry. But I am now pleased to state that F. C. Bishopp, of the United States Bureau of Entomology, has recently discovered a louse killer that will eradicate and kill all lice at once.

The substance used is sodium fluoride, a fine, white powder, which has been successfully used in ridding buildings of cockroaches. Mr. Bishopp has given his experience with sodium fluoride, together with drawings and descriptive matter pertaining to the many species of lice and mites found on poultry, in Farmers' Bulletin 801 (Mites and Lice on Poultry), which is mailed free on request to the division of publications, Department of Agriculture, Washington, D. C. We cannot recommend this bulletin too highly.

Sodium fluoride is not ordinarily kept in stock by a druggist, but he can obtain it for you from his wholesale house. One pound is sufficient for from 50 to 100 fowls, depending on their size and abundance of feathering. The cost averages from 40 to 60 cents. It would be well to order a can of fluoride in advance, so as to have it on hand when the housecleaning is commenced.

The treatment of the fowls is quite simple. The powder is usually applied dry, but a solution of fluoride in water (one ounce to one gallon) makes a good house dip. The best way to apply the powder is by the pinch method. A small pinch of the material is placed among the feathers next to the skin as follows: One pinch on the head, one on the neck, two on the back, one on the breast, one below the vent, one on the tail, one on either thigh and scattered on the underside of each wing when spread.

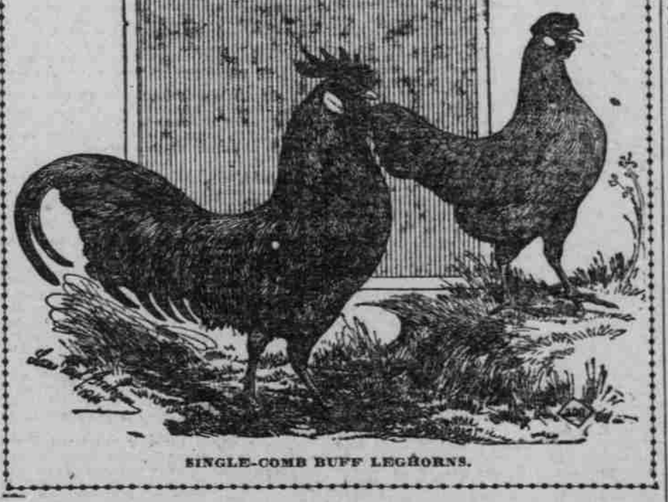
Catch the fowls that were confined in the coops and boxes while cleaning the house, and hold each over a shallow pan during the dusting, so that any surplus powder will not be wasted. Treat every fowl and growing chicken at the one time, and this one application will kill every mature louse. While some of the louse eggs might hatch, the young will be quickly poisoned. I doubted this at first, but I treated some heavily feathered Buff Cochins with the dry fluoride (a difficult breed to keep free of body lice), and one application killed every louse.

Use of Blue Ointment.

Before I learned about sodium fluoride I kept fowls free of lice by treating them with a poisonous ointment and insect powder. The ointment, known as 33 per cent blue ointment, is used very sparingly—a small dab being rubbed on the flesh below the vent, and another under each wing, space not larger than a dime is covered, for the reason that this ointment is a mercurial product, and is readily absorbed into the system. This ointment poisons the body lice, but it does not reach the head lice. The head lice, which rarely migrate to other parts of the body, are exterminated by rubbing into the feathers of the head and neck some yellow Pyrethrum insect powder, or any commercial louse powder. One application will kill the mature lice, but it has no effect on the young lice that are hatched later. The powder, therefore, should be renewed every 10 days for two or three times. Special attention should be given to the dusting of the head and neck of sitting hens. Unless the mother is free of head lice the youngsters will be covered with these pests as soon as they are a few days old.

The blue ointment must be confined to mature fowls, and an application every six weeks to two months will keep the body lice under control. Growing chicks had best be dusted with sodium fluoride. Other safe head lice remedies for chicks are cooking oil (olive or cottonseed oil) and pure vaseline. Rub the oil or vaseline around the head and neck. Do not use the blue ointment on the head of a chick, even if it is diluted with grease or vaseline. Don't use any grease containing mercury.

Treat every chick or fowl you purchase and kill the lice on it. Don't let one lousy hen infest the whole flock. The returns will repay you many times for the labor and expense of the whitewashing, spraying and dusting.



SINGLE-COMB BUFF LEGHORNS.

THE egg machines—the Leghorns—are always in demand, not only with those who measure the worth of a flock of fowls by the number of eggs produced, but also with the fancier. They are bred in several colors, but the white is the most popular. This is due, perhaps, because it is easier to breed white fowls than colored ones. To the fancier, however, the single-comb Buff Leghorn makes a strong appeal. It is possessed of all the heavy-laying proclivities of its white cousin. The eggs are fertile, hatch well and the chicks are comparatively easy to rear. Like the whites, the buffs make good squab broilers at eight weeks of age.

Breeding to good shape and the correct shade of buff at the same time is the most difficult feature of the breed. It has been said that the popularity of the buff variety is the most lasting, except the white, which recommends itself to the purely commercial farmers.

Buff Leghorns were originated in England. Mrs. Lister Kay was most active in their production, and, generally speaking, the fowls are the result of a cross between White Leghorns and Buff Cochins. Mrs. Kay claims that certain yellow fowls from Denmark also entered into their origin. Early in the '90s Buff Leghorns were introduced into the United States, and for several years they enjoyed an extensive "boom."

Without a doubt the buffs have all the merits attributed to the White Leghorn and lay as large an egg and as many of them. In addition to its utility, it has the added interest of handsome coloring. This coloring, too, makes it better suited to the backyard flock, since buff does not show dirt so easily as white plumage.

JOHN BULL SAVING PAPER

Official Communiques Now Posted Outside Press Bureau.

LONDON, July 1.—The prevailing paper shortage and the coming restrictions on sales of newspapers except to those who have placed orders with news agents, have induced the authorities to post the British and French official communiques outside the Press Bureau in Whitehall.

An interested crowd yesterday watched the first typewritten copy of the British Official being put into its frame and it took some time for them all to read it.

The same interest was displayed when the French Official was posted, but as this was in the French language, interest evaporated after a cursory glance from the majority of onlookers.

IRISH STILL TURBULENT

Rival Raids and Secret Drilling Reported in Countryside.

DUBLIN, July 1.—The unsettled state of the country districts in many parts of Ireland is reflected in the minor news which reaches Dublin. There are occasional rival raids for arms by the police and the Sinn Feiners, frequent reports of illegal drilling, occasional stories of disturbances in which politics evidently play a considerable part.

In County Kerry, one of the hot-beds of the Sinn Fein, the chairman of the County Council has been sentenced to a year's imprisonment for failing to report a raid for arms on his own premises, and the County Council has now decided to ask the Mansion House Conference for "permission to go on strike" as a protest.

The prosecution of the entire 33 members of the Board of Guardians of County Limerick for certain violent phrases used by them in an anti-conscription resolution, marks the first occasion even in Ireland, a country not lacking in strange precedents, when the members of a public body sitting at a duly convened meeting have been proceeded against for constituting an unlawful assembly.

The wording of their resolution appears to have been particularly strong. The resolution has not been published, but there are seven clauses in the summons charging the guardians with "assembling to sow dissension among the subjects of the King, to cause disaffection and to impede the successful prosecution of the war."