

OLD AND NEW WAYS

Technical Schools Are Replacing the Apprentice System.

THEY BOTH CLAIM ADVANTAGE

Some Chicago Employers Find the Old Way Produces the Most Practical Workmen—Changes Wrought by Trade Unionism.

Chicago.—The technical school is the successor of the old trades apprentice system. In Chicago this class of schools is turning out each year large numbers of so-called specialists in all lines of mechanical and scientific pursuits—young men who have secured their knowledge from text-books and paid instructors much as the doctor, the dentist or the lawyer gets his professional education. There can be no doubt of the value of the technical schools, but whether or not the graduates of these schools are superior workmen to those who served apprenticeships under the old system is a debatable question. The head of one of the largest Chicago manufacturing establishments says he much prefers men who have gained their knowledge and ability by actual working experience to those who have studied text-books. This man employs thousands of trained workmen, men who must operate intricate machines and build other intricate machines, and he gives it as his experience that while the graduate of the technical school is a more thorough scholar, and has a far wider range of book learning, he is not nearly so competent a workman as the graduated apprentice, and at the same time his text-book knowledge is very apt to make him so conceited as to make his services even less valuable than they otherwise would be.

A resident of this city was recently arranging to go west to inspect some mining properties, and was consulting a western mining expert. During the conversation he said to the expert that he had arranged to take with him a man of trained ability in mine engineering, a graduate of a local technical school. "Don't do it," said the expert. "When you get out there, ask for Jerry White. He is not much on book learning, but he knows more about a mine in one minute than your graduate does in a month. He is a product of the school of experience."

The tendency of the day is the development of specialists. This is nearer true of the men who learn their trade at the bench in the city than of those who get their training at the technical schools. When the student goes into the mechanical department of the latter he gets at least a smattering of all branches connected with the trade which he is learning. If his chosen vocation is that of steam engineering he will be given a theoretical knowledge of the construction of a steam engine. Given tools and time enough, he might build an engine, while the man who learns his trade by practical experience will do better work with the engine after it is built.

In the printing trades the old method made of every journeyman a master of all branches. He could set the type, make up the forms, run the press or feed it. He was a competent workman either at job, book or newspaper work. Today he may, in a general way, learn something of all these things, but after he has completed his apprenticeship he settles down to some one line, and either becomes an expert machine operator, a proficient job man or make-up. Or, if he takes more to machinery, he drifts into the pressrooms, and after serving virtually another apprenticeship becomes a pressman.

The same is true in practically all the trades in the city, and while there is more money to be made as a specialist, while serving as a journeyman, the system does not make competent general superintendents, and it is becoming harder and harder to secure men fitted for such positions.

Competency and Loyalty. Working conditions brought about by the operations of trade unions has done much to develop this system of competent specialists and lessen the supply of competent general men fitted for superintendents.

Trade unionism is also responsible, to a large extent, for the growing lack of loyalty on the part of employes for employer. This is not said in any spirit of enmity for the trade unions. It is a part of the contest that is being waged between capital and labor. Union rules

say a working day shall consist of so many hours and minutes. That men shall begin at such a time and shall quit at such a time, and that they shall be paid time-and-a-half or double-time for all over that, and the unions are careful that the rules are enforced. The spirit of giving nothing that is not paid for has a tendency to cause some classes to give less than is paid for in their efforts not to give too much. It has developed clock watchers, and, at times, loafers.

A manufacturer in speaking of this subject a few days ago, said the hardest problem he had to solve was to get from his employes all the labor he had paid for. "A few years ago," said he, "time keepers were almost unnecessary; foremen were needed only in the capacity of trained workmen, they were not hired to keep men at work. But a new spirit has entered the industrial field, and it is now a problem to keep the men at work during working hours. A large number of our employes will 'kill time' at every opportunity they can find. Their main object in life seems to be to hear the whistle blow. They have neither an interest in their work or their employers. I have been employing men in Chicago for nearly a third of a century, and it is within the last ten years that this spirit has developed. Previous to that time our men were not afraid of doing something for which they would not be paid. They worked five minutes after quitting time if it was necessary to complete a task. Now they have their coats on and are ready to bolt five minutes before the whistle blows. The old spirit of loyalty to the employer seems to have given place to one of animosity."

Classes That Are Loyal. I have said that the trouble of which this employer complains was due, in part, to the trades unions. Another part may be attributed to the employing classes. When combinations began to be the order of the day the individual employes were lost sight of by the employer. He was one of 10,000 perhaps, and he was not considered when a cut in wages was thought advisable. The passing of the individual employes marked the opening of the contest between capital and labor.

The whole manufacturing interests of the city has not yet been consolidated into trusts. There are still hundreds of individual employes, but the rules of the unions are applied indiscriminately, and the individual employes who would much prefer the old system of give and take with his employes finds the new system is at work in his plant quite as much as it is in that of the trust, and in sheer self-defense he is forced to drop the democratic ways of the past and institute rigid working rules to combat the rules of the unions.

The same spirit has invaded the offices so far as the city-born employes are concerned. It is for this reason that the merchants, the brokers, the La Salle street interests are seeking intelligent young men from the country more than ever.

The head of the Chicago branch of a big insurance company said to me a few days ago that the most trust-worthy clerks he had in his office were from the country. Men who had remained on the farm or in the villages until their life habits had been formed. "They do not have to be watched to keep them at work," said he. "They are interested in what they are doing. Their departments are never behind. I cannot say nearly so much for the city-born man."

Business and the Theaters. Never before did Chicago realize to what extent the theaters of the city affected general business conditions. The clamor for permission to reopen has come from the retail merchants, the wholesale merchants, the restaurant and hotel proprietors, the railroad and the liverymen quite as much as from the theatrical interests. All lines are suffering because of the closed playhouses. Buyers from the country, who make their spring business trip to the city serve also as a holiday, are passing Chicago by and going to other wholesale markets, where they can attend the shows during the evenings. This is hard on both the wholesalers and the hotel men. Pleasure seekers from the country, people who come to the city on pleasure trips and patronize the retail stores while here, are staying at home, or going elsewhere. And all Chicago seems to have shut itself in the house. At night the downtown streets are deserted. Night suburban trains on the railroads are not carrying passengers enough to pay the train crews. The liverymen find no demand for their carriages. The fashionable after-theater restaurants are unpatronized. The hotels have lost the business derived from catering to the theatrical companies, and business in general seems paralyzed.

In the meantime the owners of 31 play houses are waiting to know their fate from the city council. Churches and halls are being forced to make changes so as to comply with the city ordinances and the coroner is trying to locate the blame for the Iroquois fire, in which 593 lives were lost by someone's carelessness.

WRIGHT A. PATTERSON.

THE SPORT OF KINGS

Crowned Heads of Europe Are Experts with Rifle and Shotgun.

WHEN FUR AND FEATHERS FLY

The Majority of Them Shoot Because They Like To, But Czar Nicholas Follows the Chase Because It Is Fashionable.

DURING his short visit to England the king of Italy spent two days among the pheasants at Windsor, and the incident reminds us that most, if not all, the crowned heads of Europe are experts with shotgun and rifle, and devoted to their use.

King Edward is equally at home among pheasants that come out high over the tree-tops, or return to their cover from some unfamiliar cove to which they were shepherded by skilled beaters in the earlier day. He is

KING EDWARD AT A DEER-DRIVE ON DEESIDE.

reckoned a fine shot with the rifle at driven deer—a far more difficult mark than they are generally supposed to be. For the stags let the hinds go first through passes that favor the gunner, and the last mad rush of the monarchs of a great herd requires no little stopping.

Italy's ruler has ever been a keen sportsman, from the early days when, prince of Naples, he wooed and won a wife as ardent a follower of the open life as himself. Queen Elena, daughter of the fine old "Gospodar" Prince Nicholas, of Montenegro, had been brought up in a sporting land, with sisters and brothers devoted to the outdoor pastimes; her brothers are expert shots, whose fame has traveled far beyond the narrow limits of their father's kingdom.

Turning to Italy's associates in the triple alliance, we find two keen sportsmen at the head of affairs. To his outdoor work among the hills in pursuit of stag and chamois and varied fur or feather, Franz Josef, the aged Austrian Emperor, owes not a little of his vitality and endurance. It is no light load of care he must discard; at his age the burden might well be past bearing. The bracing air, the call of the sport, and the steady demand upon brain as well as hand, serve, appar-



CROWN PRINCE OF SWEDEN AND NORWAY WILD DUCK SHOOTING.

ently, to banish the troubles that wait on statecraft.

The German kaiser is a keen and skilled performer with the gun, and his prowess is the more remarkable because one hand is comparatively useless. He has remarkable endurance, and he, too, uses shooting as an antidote to the worry of affairs. His sons—

—or the elder ones, to be exact—are credited with more than common capacity. One of them was shooting in England last year on the estates of the duke of Buccleuch, where his work with the gun was commented upon very favorably.

Part of a French president's duties would seem to lie among the pheasants. The writer has seen the late French president, Felix Faure, shooting at Rambouillet; the biographer has preserved the scene, and a music hall presented it to London. A leader in uniform looked after the second gun of M. le President; one or two officers correctly attired stood stiffly by his side; and the birds went hard down wind, or seemed to. The president shot severely and without emotion; amid the noise of battle he was profoundly calm. Perhaps it was the proper official attitude; perhaps he was conscious of his biographer. M. Loubet does not look as if he would greatly enjoy a battue, but doubtless he does his duty when France calls upon him to shoot pheasants.

It is more than likely that the czar

of all the Russias gets little or no enjoyment from his use of the gun. With him, shooting is a diplomatic fiction; even the famous visit, made a month ago, to the preserves at Murzsteg was a matter of necessity rather than choice, and it could have given him scant pleasure to shoot in woods that had to be surrounded for the sake of his personal safety by thousands of soldiers and scores of detectives. The sense of freedom that almost all Europe's rulers may enjoy is forbidden to the Little Father, and no bird or beast in all his forests has a more anxious life.

Abdul Hamid II., the padishah, the caliph of all Islam, does not shoot game.

Dom Carlos, hapless of kings and most jovial of men, is perhaps the best shot among the crowned heads of Europe. His prowess is wonderful. A big, heavy man, he moves his gun with a rapidity that must be seen to be believed, and what he aims at falls, properly hit. With shotgun, rifle, or revolver he is equally expert—indeed, he can pierce the marks on a playing-card with a revolver at 20 paces and drop flying pigeons with a rifle. He is never more happy than when he has a gun in hand, and frequently competes

among his subjects at the Tir aux Pigeons at Cascaes or elsewhere in his own dominions, nearly always winning the prize and never taking it. When Dom Carlos was in England he was recognized by all who had the privilege of seeing his performances as a man who had nothing to fear by comparison with that country's finest shots.

The king of Spain, Alfonso XIII., is devoted to the gun, and is never happier than when, on the preserves of the Pardo, he is in pursuit of all that runs or flies. This relaxation is very necessary, for the young monarch's health has given great uneasiness to his immediate circle. People round him realize that Madrid is no place for the young king; that his best chance of health will come in open air and, incidentally, as far from Madrid as possible. His love of sport may yet keep him from the throne.

Gustave, crown prince of Sweden and duke of Wermland, whose well-laden boat testifies at once to his gifts as a sportsman and the quality of the preserves he has been visiting, is the eldest son of King Oscar II.

Old King George, of Saxony, who has passed his seventieth year, is still devoted to the gun, though he favors the

comfortable fashion of sitting in a carriage and rising when the birds begin to come over. Probably the excitement is no less.

Many of Europe's monarchs keep enormous game preserves for their pleasure and that of their royal guests, for European monarchs are noted visitors.

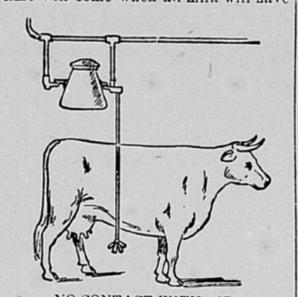
On a royal preserve every precaution is taken to maintain complete privacy. Experienced foresters and huntsmen alone are permitted to penetrate into the vast coverts where the wild boar and the deer dwell in fancied security. No unauthorized visitor can hope to venture unchallenged far beyond the outskirts of the preserves at any season. The great day, or week, of the year arrives, and for a brief space no sanctuary of the woodland is inviolate; there are beaters everywhere, and great masses of game are driven before the guns along paths that the head huntsman has mapped out. A vast bag is made, the hunting-lodge wakes to a few days of gaiety—a gaiety that is silenced only when questions of high policy claim discussion; and then the royal party breaks up. The forest recovers its accustomed serenity; the survivors of the great days find their way back to favored haunts; their terror or nervousness passes away as week succeeds to week, leaving them undisturbed, the advent of the spring finds all their troubles forgotten.



NEW MILKING MACHINE.

Pennsylvania Inventor's Unique Device Prevents Contact of Milk with the Atmosphere.

With the recent report of a state health board official that an epidemic of fever in one of our largest cities could be traced directly to a case in the family of a milk dealer in that locality, the urgent necessity for sanitary inspection of the milk supply is again made apparent to even those individuals who are rather inclined to scoff at such advanced scientific theories. No doubt, the time will come when all milk will have



NO CONTACT WITH AIR.

to be sterilized before being offered for sale, but even should that desirable condition of affairs be reached, it will still be obligatory upon the milkman to see that no opportunity is afforded for the contact of the lacteal fluid with contaminated atmosphere in the stable. Probably the best way in which this can be accomplished is by the aid of the pneumatic milking machine here illustrated. It is so arranged as to not only milk the cows automatically, but also enclose the milk in an air-tight receptacle as long as it is in the proximity of the animal. This is accomplished by a reservoir suspended overhead and connected with the teat cups by a short section of hose. By means of a vacuum created in the pipe to which the reservoir is attached the milk is drawn from the teats and deposited in the receptacle, whence it can be removed to the creamery for further treatment before being placed on sale.

—Louisville Courier-Journal.

CORN AND COB MEAL.

A Combination Which Is Held in High Favor by Progressive Western Dairymen.

Cobs are too valuable for the dairyman to throw away or burn. They may not possess much nutriment, but it has been demonstrated quite conclusively that they have a feeding value not much less than the corn that grew upon them, provided they are ground with the corn. A certain weight of corn and cob meal is equal in feeding value to a like weight of pure ground corn. This result doubtless arises from the more digestible form given to the corn meal by the presence of the ground cobs. One of the largest cattle feeding companies in Nebraska buys all the cobs it can get, which grinds with the shelled corn it has been compelled to buy. It raises corn and buys what it can unshelled, but has still to resort to outside purchases. Our readers should remember this. It is one strong argument in favor of grinding the corn rather than feeding it in any other way; for only by grinding can the cob be rendered available. The chemist cannot find the value in the cob that the cow can, but it is there. We have paid too little attention to the mechanical form in which our dairy feeds are given. The cow has a stomach differing very much from that of many other of our farm animals, and concentrated feeds are not handled in it to good advantage. —Farmers' Review.

How to Keep Roads Good.

The question is not how to make good roads, but how to keep good roads. It is evident that the travel, and especially hauling, when roads are soft from continued rains, or especially when the frost is coming out, does the greatest damage. The law prohibits heavy hauling at such times, but it is not often enforced. Now the remedy I propose is for the law to encourage broad treads. If all two-horse wagons had a tread of 12 inches, and so arranged that the hind wheels would not follow in the track of front wheels, only lap one or two inches, they would be like a roller, rolling 44 to 46 inches, and buggies and carriages four to six-inch treads. This would do away with making channels in the road by continued travel in one place. Of course this could not be brought about all at once, but there should be a stringent law against narrow treads when roads are soft, and perhaps it would be well at first to give a bounty for broad treads. It would encourage the same, which I think solves the road problem. —Correspondence Indiana Farmer.

What the Law Decides.

A statute permitting the sale at auction of trespassing animals after the posting for ten days by the proper officer of notice that the animals had been impounded, and are detained for a certain amount of damages and costs, without providing any judicial proceeding to ascertain either the damages to be paid or whether or not the animals were in fact running at large within the meaning of the statute, is held, in Greer vs. Downey (Ariz.), 61 L. R. A. 468, to be void as depriving the owner of his property without due process of law. —Chicago News.

SUBSOILS FOR ORCHARDS.

Unless They Are Just Right It Is Impossible to Get a Healthy Growth of Trees.

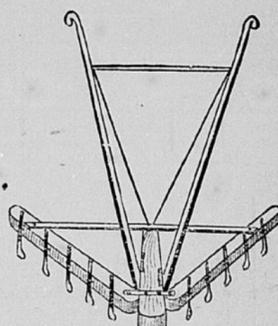
In his last annual report Prof. D. W. Hilgard, director of the California experiment station, calls attention to the importance of examining into the nature of the subsoil of the proposed orchard site. He says:

Few persons can have an idea of the extent to which the planting of orchards on shallow soils underlain by hardpan or heavy clays has caused pecuniary loss, often almost ruin, to old timers as well as to newcomers to the state. Every few days there come letters transmitting samples of tree-branches having the "die-back," and asking about the means of relief. We might usefully stereotype the first sentence in reply to such inquiries, briefly to the effect: "Examine your subsoil!" In nine cases out of ten it is either hardpan or an impervious clay substratum, which deflects the roots sideways after the second or third year, and of course prevents a healthy normal development toward the moist depths of the soil, where abundant plant-food awaits them in all good orchard lands. More rarely it is a layer of coarse sand, or gravel, which prevents the rise of moisture from below; sometimes it is the rise of the bottom water, which causes disease of the deeper roots, and also starves the tree. Almost invariably the question is asked: "What fertilizer must I apply to remedy the trouble?" Well, in most cases no fertilizer of any kind will remedy the difficulty; the existence of which should have been ascertained before planting the orchard, or, better, before buying the land at all. Even in the east and in Europe, careful farmers scrutinize the subsoil before investing. In the arid region this is tenfold more needful, because of the critical importance of the subsoil, overshadowing that of the surface soil, as already explained. The irrigator who pays so dearly for his water is doubly interested in it, and ought always to know how long it takes water to soak to a certain depth in his land, so as to be sure that it does not run off the surface of natural or artificial hardpan, and flow to the neighbor below, instead of soaking down.

HOME-MADE WEEDER.

Simple Implement Which Reduces Labor Expended in Garden Work to a Minimum.

Take three pieces of oak, three by three, three feet long, make front ends of outside pieces round and bolt all three together with two strips of iron at front, one on top, the other on bottom, so outside pieces will work on hinge, fasten



WEEDING IMPLEMENT.

handles to center piece; for back braces take two pieces of old wagon-tire two and one-half feet long, fasten to each outside piece at back end, punch four holes in each brace and bolt to center piece; by punching several holes in the back braces you can widen or close the weeder to suit the width of row; join handles to center piece and brace handles as shown in cut; take 12 narrow teeth and shape like shovel plow, saw a notch on outside piece two-thirds the depth of tooth, fasten teeth with bolts by boring one hole through the outside piece and another half way. In the form of a staple; by this method you can raise or lower the teeth as desired. —A. L. Craig, in Epitomist.

Spraying Kills Apple Scab.

Experiments at the Ohio station have demonstrated clearly that the apple scab is the chief factor in the destruction of the apple crop, and that this fungus can be kept under control by spraying. Four splendid successive crops were produced on the sprayed trees at the station, while the fruit on the unsprayed trees in the same and neighboring orchards was worth less. The director, Prof. Thorne, however, calls attention to the fact that exhaustion of soil fertility, want of water and insect ravages may all cooperate with scab or other fungus growth in shortening the crop, and says: "If our orchards are again to produce the great crops of earlier days, we must, in so far as possible, restore the soil conditions of those days; we must avoid the waste of water in these sections where rainfall is scanty by preventing the growth under the trees of weeds or grass, and by keeping the surface in such condition as to prevent rapid evaporation."

Growing Medicinal Plants.

The extensive imports of leading drugs, exceeding \$3,000,000 annually, have led the department of agriculture to study the possibility of profitably producing some of these at home. The cultivation of golden seal, snake root and similar native drug plants, which are becoming exterminated in the wild state, has been begun on a small scale. The leaves of plants like stramonium cannot be produced profitably unless grown where land and labor are cheap. Experiments in curing leaves with artificial heat gave promising results.