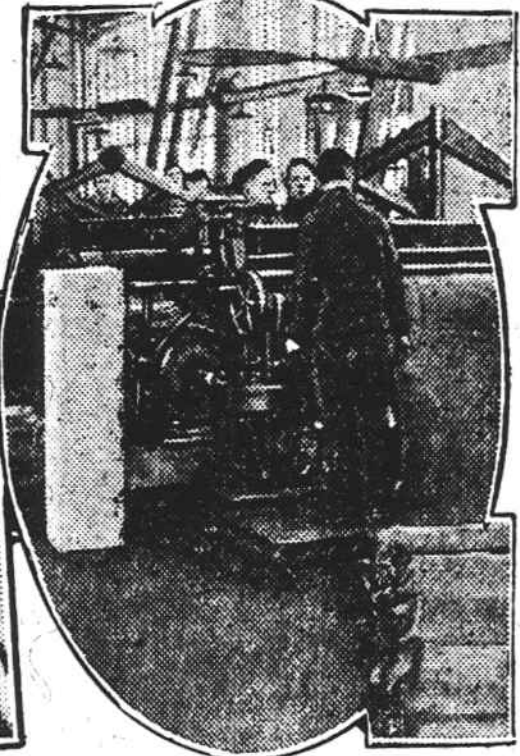
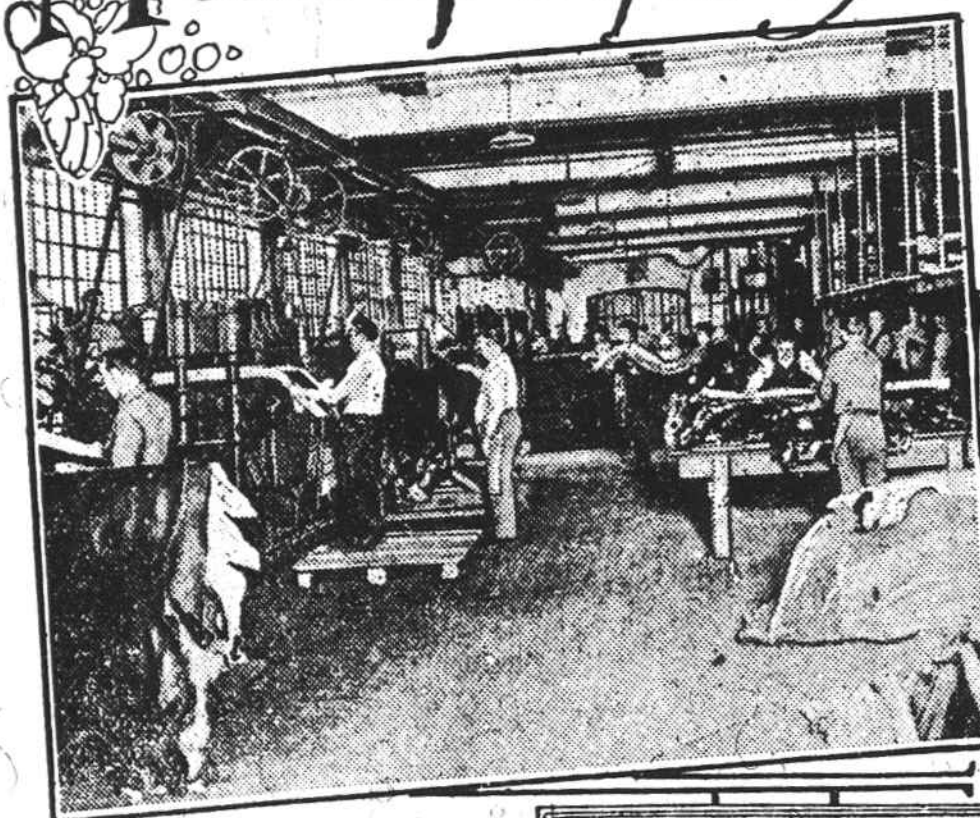


# Multiplying Leather



SPLITTING LEATHER INTO LAYERS

SURFACING SPLIT LEATHER

HIDES ARE STILL HIDES BUT THE FINISHED PRODUCT IS SOMETHING ELSE

By ROBERT H. MOULTON

THE needs of mankind multiply with amazing rapidity. Were it not that scientific discovery, creative chemistry and the mechanical arts have somehow managed to keep pace with the enormous demand for natural products, or something equally good or better, industrial progress in many lines would long ago have been halted for lack of raw materials and manufactured products of many kinds.

Take leather, for example. If the world's requirements for leather were to be supplied by hide leather as it was made a century ago, the industry would be paralyzed almost over night. Production simply couldn't keep up with the demand. Fortunately, ways have been found to multiply the amount of usable leather that can be produced from a single hide.

Probably the original process of curing skins was that of simple cleaning and drying. In contrast, the modern practice, while it involves both of these operations, calls for many other essential operations before hide stock is made into finished leather. Hides are still hides, but leather is a product transformed by the chemical and mechanical means rather than by natural agencies. The processes now used in making it have been developed through a known period of more than 8,000 years.

For the purpose of a trade definition the hide of an animal consists of three layers; the outer, which has no blood vessels and is hard and bony; the inner true skin, which is made up of gelatinous fibers, and the fatty under tissue in which the perspiratory and sebaceous glands are embedded. The inner layer or true skin is by far the most valuable and serviceable to the leather manufacturer. Some idea of how leather is made may be gained by following in sketchy detail the various operations of a large tannery.

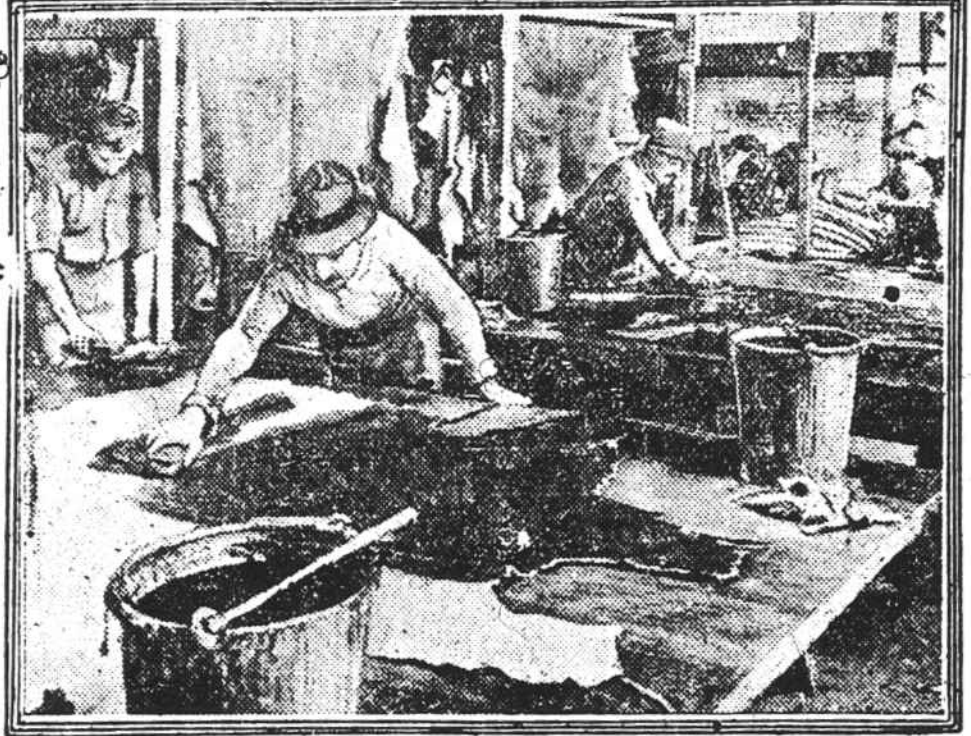
Enter first the enormous hide house. Here the green, salted hides are unloaded from cars and stored until they are ready to be put through the tanning process. They are in their original condition as taken from the animals except that they have been treated with salt for thirty days to preserve them.

The next operation takes place in the beam house where the hides are washed in clean water to remove all dirt and salt. Here they are put through the green fleshing machine which removes all superfluous flesh that will not ultimately make leather.

Following this operation the hides are placed in frames and lowered by means of an electric crane into concrete tanks containing a solution of lime and water. After a week's immersion in this solution the hides swell and the hair becomes loose. They are next lifted out and put through the unhairing machine. Then they are passed through the fleshing machine again to remove any superfluous fat missed in the first operation. After a final rinsing they are ready for tanning.

The scene now shifts to the tannery, an immense building equipped with hundreds of huge vats. Here the hides are placed on frames and lowered into a mild tanning liquid, which is strengthened every day for a period of ten days. The tanning process is not completed at this time, but it is sufficiently advanced to put the leather in condition to be split.

Naturally, when the leather is taken out of the vats, it is thoroughly saturated with the liquors. Accord-



"DOPING" LEATHER FOR UPHOLSTERY

ingly, the next operation is to pass it through wringers to remove all excess moisture. This is done in a room called the preparing room. The rough edges are then trimmed and the hides selected by weight for splitting.

In the splitting room the leather manufacturer produces three or four sheets of product from a single hide. The operation itself is of special interest because of its importance in the industry. Hides, because they are variable in thickness and irregular in shape, are difficult to split; at least, that was true before the ingenious belt-knife splitting machine was devised. The most vital part of this machine is the belt-knife, which travels hundreds of feet per minute, its cutting edge kept sharp by two emery wheels continually grinding. Flexible rubber rolls hold the guide at a uniform tension under an adjustable gauge-roll as the rapidly moving knife slices the leather in sheets of the required thickness. The hide is passed into the machine on one side and is withdrawn on the other, with one full pattern split off. Each hide is passed through this machine three or four times, multiplying, as it were, the number of hides procurable from a single animal.

After the hides are split they are sent to a re-tan room, where they are again placed in the tanning solution until they are completely tanned and also treated with oil—a process which requires only two or three days, because the splits are now much thinner than the original hide. The splits are now stretched on frames and taken to the drying loft where they remain until all moisture has been removed. This requires about twenty-four hours.

It may be noted, in passing, that from the time the stock leaves the drying room up to the finishing point, it is known as russet leather. The next operation takes place in the shaving, softening and russet departments, where the leather is made pliable and any variations in thickness caused by the splitting machine are shaved off.

When the hides are split, the top piece, or first cut, is known as the grain or hair side of the split. The next two pieces, or cuts, are known as splits. These grains and splits vary in size, thickness and quality and are therefore sorted before they are sent to the finishing shops. The means employed to finish leather vary greatly with the purpose for which it will be used. In the factory under observation practically all the grain leather, and a very large proportion of the split leather produced, is used by the automobile trade for upholstery purposes.

The finishing of grain leather, because of its smooth and uniform surface, is accomplished merely by the application of a very light coating of specially prepared and colorless linseed oil, and then embossed to produce whatever design or "grain" may be desired on the finished leather.

In the case of split leather, however, a much heavier coating is required to cover the fibrous character of the

surface. The film deposited by heavier coatings of linseed oil, which was the original method of finishing split leather, possesses neither great strength nor durability; but perhaps its most serious defect is the brittleness which develops with age or at low temperatures, which caused the finish produced in this manner to crack very easily.

The first improvement over the linseed oil finish for split leather was the use of a solution made by dissolving scrap celluloid in amyl acetate and wood alcohol, with the addition of castor oil to render the film flexible, and of course the pigments necessary to produce the desired color.

It was soon found, however, that a by-product like scrap celluloid was subject to too wide variation to produce a reliably uniform finish, and the next step forward was the preparation of similar solutions from nitrocellulose made especially for this purpose in place of scrap celluloid. While this improvement overcame the most serious defect of lack of uniformity, objections previously overlooked soon became prominent.

By continued experiment, however, a solution composed of ethyl acetate, denatured alcohol and benzol was produced and found to be entirely satisfactory. The film or coating deposited on the leather by this solution is strong, tough, durable and waterproof, yet sufficiently flexible to meet the requirements of good upholstery leather; it is not subject to cracking with age or at low temperatures, and provides an excellent medium for retaining the impressions of embossing plates almost indefinitely. Splits from hides of good quality, properly tanned, and carefully coated with these solutions are even superior to grain leather for purposes where the finished product is subjected to weather exposure and particularly rough usage—as, for example, the upholstery of automobiles.

After the leather is finally finished it is passed through an automatic machine which measures the number of square feet in each piece. Despite irregularities in shape this machine does its work accurately and quickly, whereupon the leather is rolled in tissue paper and packed for shipment.

### Commuter in Tight Place.

I am a commuter. This day of my life, I had the previous evening been doing some gardening and had occasion to take out my pocketbook and lay it to one side. Morning came with the usual hurry to make the train. I managed to get a seat, and was getting nicely settled, when I thought of my pocketbook, with my ticket within. My predicament was no ticket, and no money with me. The conductor came around and I told him the situation. He said I should try and borrow a ride from some one who lived in my town. I was about to start on this, novel, but to me very embarrassing quest, when the gentleman next to me, from another town, very kindly rescued me.—Exchange.

### Royal Sword of Scotland

The great two-handed sword with which Robert the Bruce fought at Bannockburn has been handed down from generation to generation of the Bruce family who possessed Clackmannon tower. The last survivor of this branch was Mrs. Catherine Bruce, a lady of remarkable character and strong Jacobite convictions, who was convinced that her possession of the Royal Sword of Scotland gave her

the prerogative of conferring the honor of knighthood. She thus honored many visitors to Clackmannon tower, among them Bobbie Burns, who visited when she was a nonagenarian. As Burns rose to his feet he gallantly kissed the old lady's hand. "What all thee at 'ny lips, Robin?" the ancient dame is said to have asked.

Lived Thousands of Years Ago. Traces of a settlement estimated to be from 7,000 to 8,000 years old have been discovered in the bay of

Hollgaard, about six miles from Noestoed in southern Zealand. The remains, consisting principally of arms and tools, were found by peat-cutters at a depth of several feet and resting on the stratum which dates from an early glacial epoch. Forty flint axes, with other axes and harpoons made of bone from the antlers of animals, have been found. Bones of royal stags, elks, wild boars, beavers, foxes and dogs have also been brought to light and carefully preserved by experts from the national museum.

## Uncommon Sense . . .

By JOHN BLAKE

### CIVILITY

THERE is an old copybook maxim to the effect that kind words cost nothing and are worth much.

Anything that costs nothing and is worth much is a good investment. We know of no better investment than civility.

Civility is your best introduction to a job. It is your best introduction to success. The genius, perhaps, can dispense with it. But geniuses are scarce. No ordinary man can afford to do without it. No matter how great your ability or how extensive your education, without civility you will be set down at the start as a gloom, and nobody wants gloom about the place.

Salesmanship, which plays an important part in any business—whether it

is the merchant's, the doctor's or the laborer's, cannot be successfully managed without civility.

From your own experience you know how often you have gone into a store, intending to buy, and have been driven away by the bad manners of a stupid clerk.

The great salesmen practice civility as their cardinal principle. They are never servile, but they are always civil.

Whatever your business or trade, you are selling your services. To sell them you must first make a good impression. And to make a good impression you must be civil.

We repeat the word over and over again because of its great importance. You have only to look about you to understand how important it is.

Who is the man given first chance at new work in any office? The man who, by his activity, has attracted the interest of the man higher up.

Whom would you prefer to have around you, in case you were a boss—the man who is civil or the man who seemed always sullen and discontented?

Civility, the cheapest of all commodities, is also the most valuable. It is, of course, not the only requisite for success. To succeed you must have brains, then industry and application. But it is civility that attracts your qualities, gains them a hearing and keeps them constantly before the minds of the men who are their purchasers.

Cultivate it, if you lack it. It will prove worth more than you will believe until you get a little business experience.

(© by John Blake)

### POPULARITY

By GRACE E. HALL

WHOM all adore I cannot love— Too often he is weak,pliant, adjusting to wish of those Whose voices speak.

Give me the strong; who swiftly take Their chosen way, alone; Nor cringe nor fawn, but boldly make The world their own.

Whom all adore I cannot love— There is no real force there, For he whose will is like a rod Stoops not to share.

Give me the strong! The lonely tree Upon the storm-swept mountain great, Has twice the strength of those we plant Inside our gate.

Give me the strong! The plastic clay Is molded by the hands Of every one who pauses, passing by— The marble stands.

(© by Dodd, Mead & Company.)

## Something to Think About

By F. A. WALKER

### RIGHT BEGINNING

WHAT you have done a dozen or so times without getting the result you sought signifies that your efforts were faulty.

You repeat and repeat, still cling to the wrong way, continue your blundering and finally end in dismal failure. You may be a very adroit person, capable of steering your course through ordinary difficulties with a commendable degree of confidence and even succeed in astonishing your employer, but when the real test of your ability comes, the one upon which your promotion depends, your unfavorable star glares malevolently, and away you go higher and thither like a leaf in a gale, knowing not where you may be swept.

After the wind has subsided and the keen edge of your disappointment has been blunted, you seek consolation in the thought that of the millions who occupy the face of this planet, great numbers of them have passed through similar experiences and survived.

That this is true, and in all likelihood will remain true until the end of time, does not in the least benefit you materially or contribute in the smallest degree to your intelligence, unless you may have learned in your defeat that one cannot do things properly until one has first found the way to the right beginnings.

It is good to smile and bear the burden of the cross complacently, but the better thing to do is to ascertain your faults and so improve yourself that another failure of the same nature shall be impossible.

### Has Anyone Laughed At You Because —



You Have Your Breakfast in Bed?

Cheer up. You know the thinking you have done before getting up to go to your job—alone—unaccompanied at breakfast. You know, too, the calm it has given to your nerves—to be alone until you go into the street. You know, too, how bodily relaxed you are and how much better the day goes because of your added rest. You know it isn't laziness. You know its conservation of energy. You have done some good reading waiting for your tray. The tray means rest, thought, relaxation, strength, storage and calm.

Your get-away here is: You can't afford to give up such be-tray-al, and advocate it for others. (© by McClure Newspaper Syndicate.)

## SCHOOL DAYS



THE LONG JOURNEY

## ONCE IS ENOUGH



by starting at the very base and working undismayed through heat and cold to the crowning summit. (© 1923, by McClure Newspaper Syndicate)

## Mother's Cook Book

### We climbed the height by the zigzag path.

And wondered why—until We understood it was made zigzag To break the "force of the hill."

A road straight up would prove too steep For the traveler's feet to tread; The thought was kind in its wise design Of a zigzag path instead.

It is often so in our daily life; We fail to understand The twisting way our feet must tread By Love alone was planned.

Then murmur not at the winding way, It is our Father's will To lead us home by the zigzag path, To break the "force of the hill." —The Christian.

### SEASONABLE FOODS

A NICE dish which may be prepared from fresh vegetables and one which campers will enjoy is green peas, new potatoes, small onions and carrots all cooked together with a few slices of diced bacon which has been left from breakfast. Cook in as little water as possible so that there will be none to drain; add with seasonings a pint or more of milk and when hot serve in small vegetable dishes.

Cucumbers dressed with sour cream, seasoned with salt and pepper are well liked. Some cooks wilt the cucumbers before dressing them. Let them lie in salt water for a while to soften, then drain, add cold water and let stand for a while before serving. To most palates the crispness of the cucumber is its great charm; if that is destroyed they are not as attractive.

### Lemon Pie.

Cook together for five minutes equalful each of sugar and water. Grate the rind from a lemon, add the juice to it. Mix two tablespoonfuls of cornstarch with a little water and add to the hot sirup; cook until the starch is well cooked, then add the lemon juice and rind and two well-beaten egg yolks mixed with a little of the hot sirup. Cook long enough to cook the egg, add a tablespoonful of butter and a pinch of salt. If not ready a baked shell, pour in the filling when partly cool and cover with a meringue made by using the two egg whites and two tablespoonfuls of sugar. Brown in a moderate oven.

Nellie Maxwell (© 1923, Western Newspaper Union)

### Nation's Shortsightedness.

The nation's lumber shipment in 1920 was about 2,070,000 carloads and the average haul for each carload 185 miles. According to the Bureau of the forest service, United States Department of Agriculture, the freight bill on lumber for that year was \$200,000,000. A fraction of this sum, if the forest service, wisely invested each year in forest protection and reforestation would grow timber where it is needed, reduce the nation's freight bill, cheapen lumber and release vast amounts of railroad equipment and labor for unavoidable transport. Coal and iron cannot be grown, but timber can be.