

## Dietz on Science— COPPER SHEETS NOW PRODUCED BY ELECTRICITY

Method Is Much Faster  
Than Old Way of Using  
Rollers.

BY DAVID DIETZ  
Scripps-Howard Science Editor

A new method of producing thin copper sheets by electro-chemical methods is expected to reduce the cost materially and to result in many new uses of sheet copper.

Many years of research by metallurgists have resulted in the development of the new method which is known as "electrodeposition."

The old way of making thin copper sheets was to roll a bar of copper between a series of rollers, each trip through the rollers flattening out the copper a little more. This method was slow, it often taking as much as three weeks to produce a very thin sheet. There were also considerable losses due to scrap.

In the new process, the copper sheets are produced in a few hours. The process may be started with less pure material since it is automatically purified as it is deposited. In addition, sheets three times as wide as those obtained by the mechanical process can be obtained.

The new process is somewhat allied to that used for copper-plating, but employs an electric current many times larger. The copper is deposited from a solution upon a large, revolving lead-faced drum. The copper is formed upon the drums into sheets as light as one ounce per square foot and as wide as thirty inches.

If a heavier sheet is desired, the thin sheet is sent through a second tank where additional copper is deposited upon its surface. Any desired thickness up to sixteen ounces per square foot can be obtained in this way.

**For Automobile Tops**  
It is expected that the new copper sheeting will find many uses in conjunction with other materials to which it will be bonded. In this fashion it can be used with composition board, fiber, paper, felt and various textiles.

One automobile concern is reported to be experimenting with a combination of copper sheeting and fabric as a topping material for closed cars. This would give the car a fireproof copper top. It is believed that this top would weather well and be more resistant to the abrasion of tree branches than the materials now used.

Experiments are also being tried to use the copper sheeting alone or the copper in conjunction with another fabric as a roofing material. At the present time, thin copper sheets are used to cover underground pipes as a means of protecting them from corrosion. It is customary to cover the iron pipes with a plastic coating. The pipe is then wrapped with a spiral of thin copper.

**Waterproofs Pipe Joints**  
Copper sheets, eight inches wide, are used for this purpose and so wrapped that layers overlap by an inch. The plastic coating holds the sheet in place and makes the joints waterproof.

It has also been suggested that thin copper could be used to reinforce the covers on library books which are subjected to hard usage. One oil company is reported to be using thin copper strips instead of paper in recording machines. They found errors creeping into the records because changes in humidity caused the paper strip to stretch or shrink, thus distorting the record.

Other important developments in metallurgy, according to Arthur D. Little, Inc., chemists and engineers of Cambridge, Mass., include the developments of porcelain enamel on a pressed steel backing. Porcelain enamel on cast iron backing is familiar. The kitchen sink is the best known example. Pressed steel backing now is being used in the manufacture of refrigerators, gas ranges, electric stoves and washing machines.

Engineers now are working on lavatories and bath tubs, each pressed from a single sheet of steel, and it is predicted that eventually they will develop a kitchen unit of pressed steel which will include a sink, refrigerator, stove and cabinet all in one.

Other new developments predicted are the use of enameled iron pipe instead of brass or copper pipe for drain pipes and gutters on the exteriors of houses.

Flat sheets of porcelain enamel on steel also are being suggested for use as a building material, either in the form of wall plates or shingles.

It is pointed out that many structures, built of steel frames covered with such panels or shingles, could be set up and taken down at will. It would be possible, for example, to build gasoline station or similar structure in this way, which could be moved from time to time as the trend of business dictated.

## THE NEW DEAL IN PICTURES—NO. 5

### Forest Army Goes to Work

Text by John M. Gleissner

Sketches by Don Lavin



The president asked and got permission from Congress to recruit an army of 275,000 unemployed men for work in the national forests to help relieve unemployment.



The president was authorized to provide the men with food, clothing, and medical attention, and cash as he deemed advisable. The army was given the job of handling the "Conservation corps."



The president had young men selected whose families were receiving public aid. Most of their pay of \$1 a day was to be sent home for the assistance of their families.



Congress also passed the Wagner bill providing for a national system of employment offices and for federal assistance in co-ordinating state employment agencies.

NEXT: Federal Funds to Feed the Hungry.

## Contract Bridge

BY W. E. MCKENNEY

Secretary American Bridge League

THE following hand will clarify a problem that often confronts the constructive one over one bidder:

In this hand both sides were vulnerable. North and South were not playing the one over one, but were using a system of bidding that provided for weak first and second hand and strong third and fourth hand openings.

South started the contracting with one spade. Bear in mind that we recommend that South pass with this holding.

What would you do with the West hand? It contains four high-card tricks. You can not overcall because you have no five-card suit. To double, you would inform partner that you were prepared to play the hand at hearts or that you had a good suit of your own, which, of course, is not the case.

Therefore, with this type of hand you should pass. You are not going to lose anything with your pass, because if North should pass, your partner then would make what is known as a deductive double—in other words, he can immediately picture your hand as containing high cards, but no good biddable suit, and a hand not prepared to play at hearts.

WHEN this hand actually was played in a tournament, North raised his partner's bid to two spades, which East and South passed. Now West can double. This bid says, "Partner if you have anything in your hand I am prepared to set two spades. I did not double the first time, therefore I am not

prepared to play the hand at hearts."

With this information, East, of course, should have bid three clubs

♠A-9-8-5  
♥10-9-2  
♦Q-8-4-3  
♣J-10

♠10-7-6-2  
♥K-7-3  
♦A-K  
♣A-Q-8-5

NORTH  
WEST EAST  
Declarer  
SOUTH

♠K-Q-J-3  
♥A-Q-J  
♦J-10-7-5  
♣6-3

—he should not leave the two spade bid double in.

If South should foolishly bid three spades, West will double, and under no consideration should East take his double out. The three spade double will be defeated two tricks, giving East and West a plus score of 500 points on the board.

If South passes East's three club bid, then West also should pass because his partner has said by this bid that he has little or no strength in the hand and is not prepared to allow the hand to be played at two spades doubled even though he

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## 'GAG' PUT ON MISS PERKINS IN STEEL CITY

City Officials Refuse Her  
Permission to Interview  
'Radical' Group.

BY RUTH FINNEY

Times Special Writer

WASHINGTON, Aug. 1. — The national recovery administration, whose duty it is to protect labor in its new right to organize and bargain collectively, was warned today that it must keep an eye on Homestead, Pa., after the steel code becomes effective and general attempts to organize steel workers begin.

John Meldon, secretary of the Sheet and Metal Workers' Industrial Union, told the administration at its steel code hearing that city officials at Homestead prevented workers from talking to Labor Secretary Frances Perkins when she visited there last week, and forced her to retire with her petitioners on to federal property.

'Radicals' Are Barred

Secretary Perkins confirmed the story.

She said that while she was listening to a group of workers in the borough hall she received a telegram from George Beaumont of the sheet and metal workers' union informing her his group had been denied entrance to the hall. Miss Perkins went outside at the close of the meeting and asked if Beaumont was present and, she says, "a nice-looking young man came forward" and introduced himself. "I felt a definite obligation to hear all workers," said Miss Perkins, "and invited the Beaumont group into the borough hall. Burgess Cavanaugh, however, who seemed a nervous man, said these men were radicals and would not be permitted in the hall."

Talk on Federal Property

"I announced then that we would go to the center of a nearby park, out of the way of traffic. Again, the burgess said he would not permit it. He would not let those particular people speak to me in a public park."

"A group had gathered, and I called out to know if any one would volunteer to let us meet on private property. Just then a voice called out that there was a postoffice near by. I recognized that this was fed-

eral property, and felt I could go about public business there without hindrance. The men talked to me for about twenty minutes and were to the point."

It has been estimated that flying glass causes 50 per cent of injuries to persons in automobiles involved in accidents.



Maybe N. R. A. means "Now Real Action" judging from the amazing speed with which the movement has taken hold.

Starting today, license plates are half-price. The Rose Tire Co. maintains a State License Branch Department for your convenience.

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