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FINANCE • INDUSTRY • AGRICULTURE • TRADE

FOURTH FEDERAL RESERVE DISTRICT

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Federal Reserve Bank of Cleveland

Cleveland 1, Ohio

Industrial Summary of 1951

FROM almost every point of view, 1951 has been an unusual year for industry in the Fourth District as well as the rest of the nation. An economy that was neither at peace nor at war held relatively stable under the impact of the growing defense and capital expenditure programs.

The wave of inflation that threatened to get out of hand in late 1950, crested in the first quarter and then subsided to become a minor trough. The generally anticipated shortage of consumer durable goods containing steel, copper, and aluminum turned into a near glut as consumer buying dropped off early in the first quarter and many manufacturers cut production, not because of lack of materials, but because of lack of orders and heavy inventories. Producers of shoes, wearing apparel and other soft lines were disappointed in the failure of demand to strengthen for their products.

On the other hand, the heavy industries of the District operated at, or even above, theoretical capacity in response to the gain in defense orders for hard goods and record-breaking industrial expansion programs. Steel mills functioned almost continuously at capacity, or better, except when interrupted by inclement weather or local labor disputes. The machinery and machine tool industries were under constant pressure to deliver new equipment and responded with higher rates of output and shipments.

These industrial developments were reflected in the Federal Reserve Board of Governors' Index of Production and its various components. Physical volume of output in October was 119 percent above the 1935-39 average, or virtually the same as at the beginning of the year, having largely recovered from a sag of about 4 percent in the middle of the year.

Durable goods production increased about 3 percent on an over-all basis from January through October when the durable goods production index reached 274. This was a little lower than in the early spring of the year but otherwise the highest since mid-1945. The lift to durable goods output was provided by industries producing machinery, transportation equipment (other than automobiles), and continued capacity outturn of steel. Automobile and automobile parts production sagged, however, as did production of nonferrous metal products and lumber. The downturn in these latter industries was enough to offset much of the gain scored elsewhere.

Total nondurable goods production dropped more than 5 percent during the initial 10 months of the year. Here again, however, the gains and losses were unevenly distributed. Substantial increases were scored in output of chemical products, printing and tobacco. On the other hand, considerable contractions were recorded for textiles and textile products, paperboard, leather and leather products.

Outturn of consumer durable goods as measured by the Board's new index dropped some 27 percent from January through September. The contraction was especially sharp for radio-television, major appliances, carpets, and passenger cars. In part, this was due to the limited availability of materials as the result of NPA restrictions, but in greater measure it was due to large consumer stocks of nearly new merchandise and resistance to prevailing prices which in turn had caused substantial inventories of these products to accumulate at all levels of distribution.

These divergent trends in production reflected largely changes in consumer demand and the initial impact of Government defense spending and control

of material usage. The decline in production of civilian type goods has been roughly offset by the advance in output of producers' and military type equipment.

Prices Changes in wholesale prices have mirrored the shifts in demand and production. Prices rose to an all-time high in March at 184 percent of the 1926 average and 17 percent higher than in June 1950. However, price and credit controls, curtailed consumer buying, the buildup of inventories, and sustained high rates of production, began to have a softening effect upon prices. By September, the Bureau of Labor Statistics wholesale price index was more than 3 percent below the March peak, but still 13 percent higher than pre-Korea. Changes since September have been relatively small with prices holding about level.

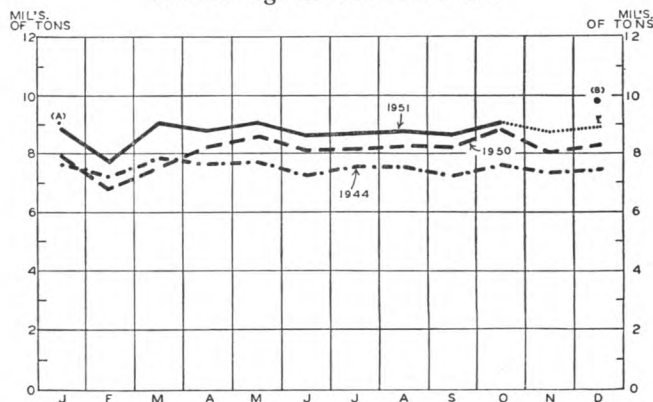
Of the major components of the wholesale price index, textile products and hides and leather products scored the largest gains, rising 34 percent and 29 percent, respectively. These two groups of products subsequently suffered the greatest losses as prices receded from the year's highest levels. Farm and food products also rose substantially in the first quarter of this year. Since then foods have remained essentially unchanged while farm products declined markedly.

Building materials and metal and metal products are approximately 10 percent above pre-Korean levels. Building materials receded somewhat in recent months from the all-time high reached earlier this year while metals and metal products have been virtually unchanged as strong demand for all metals holds prices at ceiling levels.

Employment Employment in manufacturing establishments, after rising steadily for 9 months following the outbreak of war in Korea, leveled off at about 16 million and then drifted slightly downward. Turnover of labor has been substantial as employees were laid off in civilian type industry but hiring by defense industries more than took up the slack. Unemployment has declined and remained since August at about 1.6 million persons, or about one-half of July 1950.

Manufacturing employment in the District reached a peak in March and has since held almost level. Some lay-offs have occurred in companies manufacturing consumer durable goods, automobile parts, earthenware and glass products, shoes, and wearing apparel but the gains in most classes of metalworking, machinery, and aircraft parts industries have just about offset these losses. The demand for engineers

U. S. STEEL PRODUCTION 1951 As Against Previous Years



... all steel production records were smashed this year with production at virtually 100 percent of capacity. Points A and B indicate 1952 targets if industry operates at capacity and if expansion program is achieved on schedule.

E Estimated

Source: American Iron and Steel Institute

of all kinds, machinists, machine tool operators, and tool and die makers continues strong and largely unsatisfied.

Steel In response to the insatiable demands for steel by defense and civilian customers, the industry has turned in a magnificent performance. Production has been maintained at a level heretofore believed impossible for any sustained period of time.

The record speaks for itself. In the 65 weeks from September 2, 1950 to December 1, 1951, the weekly steel rate, as reported by the American Iron and Steel Institute, was above 100 percent of capacity 54 times. The rate fell below 98 percent only twice and these occurrences were due to conditions beyond the industry's control. One occasion was when a blizzard in late November 1950 paralyzed much of Ohio and Pennsylvania, and the other was last February during a rash of local railroad switching strikes.

Production of steel ingots and steel for casting during the first 10 months of 1951 totaled 87.4 million net tons or just short of the entire annual output achieved during the peak war effort of 1944. Barring any disruption during December, total output in 1951 should approximate the unprecedented total of 105 million tons.

Expansion of steel ingot production capacity has progressed steadily despite difficulties in obtaining the necessary building materials and equipment. At the beginning of 1951, estimated capacity was 104.2 million tons or a rise of 4.8 million tons from the level of the year before. A substantially similar gain took place in 1951 so that annual capacity in January 1952 should be close to 107 million tons. By the end of 1952 capacity may be as much as 118 million tons.

The third article of the series entitled Ohio Cross Sections will appear in the January issue of the Review.

The planned 1952 expansion may be difficult to achieve in view of the present tight supply situation prevailing in heavy structural steel. The steel industry in the fourth quarter of 1951 received allotments from NPA for only 51 percent of the structural steel needed during the quarter to carry along projects on schedule. For the first quarter of 1952, however, the industry will receive 100 percent of its requirements. Erratic gyrations of this nature make planning and scheduling of construction programs very difficult and it remains to be seen how seriously they will retard the entire program.

The demand for steel has been intense all year and beyond the ability of the industry to meet satisfactorily. The Government in late 1950 began to channel steel to the more important defense and defense supporting industries through a priority system but by mid-year this began to break down through the issuance of too many rated orders. In the third quarter a beginning was made to reinstate the Controlled Materials Plan which had worked with some degree of success during World War II, and by the fourth quarter all steel consumers were brought under CMP. The plan is still not functioning smoothly and all holders of certified CMP allotments have not been able to get their orders accepted by mills.

Despite the appearance of general pressure for steel deliveries, there is growing evidence of a weakening in demand by some classes of customers. There has been a decided drop in demand by producers of stoves, refrigerators, and sanitary ware. Demand for automobile steel has also dropped in line with restrictions in permitted rates of car production. At least one large fabricator of structural steel reports a steadily shrinking order backlog. Some further evidence of weakening demand is found in the decline in volume of conversion deals—especially sheets—and the price shading for foreign and gray market steel. In part, the decline is due to the reduced rates of steel consumption permitted by NPA regulations. But it is also due in some measure to heavy inventories and slack consumer demand for many kinds of major consumer durable goods, so that rates of production are below that permitted by material allocations.

Scrap and Ore Supply The most difficult and serious problem faced by the steel industry during the past six months has been the chronic shortage of iron and steel scrap. In some cases mills are virtually on a hand-to-mouth basis and have been for some months. A few furnaces have shut down at times for lack of scrap. Although there has been a slight improvement in recent weeks in scrap inventories, District mills on the average probably have no more than a two-week supply on hand. At this time of year the supply should amount to 60 days to assure continued operation when cold and inclement weather slows down the scrap collection cycle.

Sustained rates of production together with new steel making capacity have increased the demand for scrap. Additional furnaces in 1952 are likely to aggravate the situation despite determined industry and government efforts to root out dormant scrap and speed up the collection process. It seems likely that some steel production will be lost this winter through insufficient scrap.

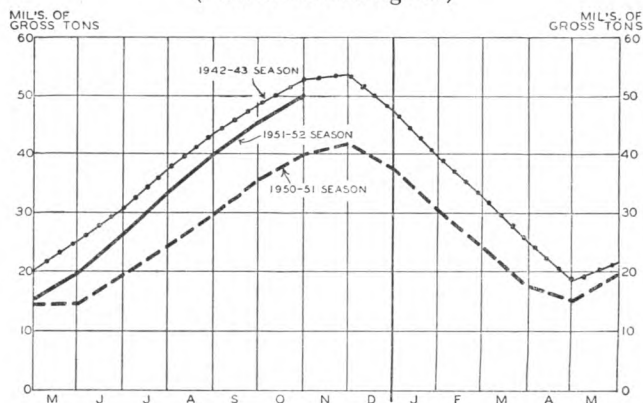
Iron ore supply on Lake Erie docks and at blast furnaces is the largest in recent years according to the Lake Superior Iron Ore Association. On November 1, gross stocks amounted to 50.2 million tons with monthly consumption averaging about 7.5 million tons.

The shipping season started in early April, nearly a month ahead of the 1950 season. By November 1, the lake carriers had moved 82.6 million tons of ore and the season's goal of about 90 million tons was in sight. Onset of unseasonable near-zero weather in the first week of November which froze the ore in the cars and necessitated steaming operations, slowed car dumpings to a near standstill. High winds and snow storms further hampered operations in the second week of the month even though temperatures moderated somewhat. As a consequence there was some doubt as to whether the 90-million-ton goal could be achieved.

Through the week ended December 3, total lake ore shipments amounted to 88.6 million tons, a gain of 11 million tons over the same 1950 period. In addition, it is estimated that 6 to 8 million tons of Superior iron ore will move by all-rail transit during 1951 season as compared with nearly 4 million tons in 1950.

Lake shipping companies during the past 12

STOCKS OF LAKE SUPERIOR IRON ORE AT FURNACES AND ON LAKE ERIE DOCKS
(First of month figures)



... stocks of iron ore at the close of the 1951 navigation season will be second only to 1942 when an earlier start under the impetus of war plus larger initial stocks gave that record season a slight edge.

Source: Lake Superior Iron Ore Association

months have taken vigorous steps to augment the fleet of bulk carriers and so ultimately to meet the demands for iron ore which will stem from the increase in blast furnace capacity. A total of 14 new bulk ore carriers are in the process of being built or are under contract. In addition two self-unloaders are being built for the limestone trade. Six ocean going vessels (mostly of the C4 type) have been purchased for modification on the Atlantic seaboard and will be towed up the Mississippi River for lake service. All but one of these modified carriers will handle ore and the remaining one will be a limestone self-unloader. One modified C4, the S.S. Tom Girdler was put into service in late October, only 5 months after work was begun on her. All but three of the new vessels will be launched in 1952 and the remainder in 1953.

The new ships will be very fast and much larger than prototypes of the existing fleet. They are expected to make about 40 round trips in a normal navigation season of 220 days and each transport a season's total of 750,000 tons of iron ore. The average vessel in the existing fleet makes 32 trips a season and carries a total of about 350,000 tons.

Iron Pig iron production has been pushed to the limit this year to meet the increased needs of both steel making furnaces and the foundry trade. Shortage of scrap has also increased the demand for pig iron. To November 1, the nation's blast furnaces had poured 59.3 million tons of iron or a rate equal to 98 percent of capacity as compared with 54.4 million tons in the comparable 1950 months and a rate of 91 percent of capacity.

Blast furnace capacity is now rated at 71.6 million tons a year, a gain in 12 months of about 1.1 million tons. Additional capacity is under construction and the current program is in balance with anticipated steel expansion. However, if the steel scrap shortage should continue or become worse, it may be necessary to build additional blast furnaces and to increase the ratio of pig iron to scrap to provide enough raw material for the new steel furnaces.

Rubber For more than a year the rubber industry has been operating under conditions of extensive government control and regulation. The Government through its various agencies buys and imports all natural rubber. It manufactures nearly all synthetic rubber. Regulations govern the use of all new rubber and specify the proportion of natural and synthetic rubber which may be used in every single rubber product and the quantities which may be produced. In addition, inventories are subject to control and prices of both raw materials and finished product are controlled.

Under these conditions, manufacturers' consumption of new rubber (natural plus synthetic) has been maintained this year at a rate nearly equal to the

all-time record established in 1950. In that year, new rubber consumption totaled 1,250,000 long tons or a monthly average of 104,000 tons. For the first 10 months of 1951, monthly consumption averaged about 102,400 tons, or an annual rate of 1,230,000 long tons. The recent trend, however, has been upward and total consumption this year may exceed the record of 1950.

A radical change, however, has taken place in the kind of rubber consumed as the Government enforced restrictions on natural rubber consumption and diverted larger quantities to the strategic stockpile. In the first quarter of 1950, natural rubber consumed was 63 percent of total new rubber used and this proportion shrank to 51 percent in the final quarter of the year. In the third quarter of 1951, natural rubber consumption amounted to only 35 percent of total new rubber used by manufacturers.

This marked shift to synthetic rubber without change in total consumption was made possible by the speedy reactivation of standby synthetic producing facilities. GR-S rubber output was increased from an annual rate of 525,000 tons in July 1950 to 760,000 tons in November 1951. GR-S producing plants are being further enlarged and improved so that output will reach a rate of 860,000 tons by mid-1952. In addition there are facilities which produce special synthetic rubbers such as Butyl, Neoprene, and N-types so that total synthetic output in the next six months may approach an annual rate of nearly 1,000,000 tons.

Despite the increased use of manufactured rubber this year, synthetic inventories held by the government and industrial users have risen steadily from the very low level reached in the fall of 1950. It appears now that holdings of synthetic rubber at the end of 1951 will be the largest in six years and more than double the year-ago level.

The exact size of the strategic stockpile of natural rubber is not known but it is reported that the accumulation goal is now in sight. This fact, together with the rise in synthetic stocks and further gains in production indicated for 1952, point to a possible relaxation of consumption restriction within the near future.

The chief impact of rubber consumption restrictions has fallen upon tire and tube manufacturers, the principal consumers of rubber. In general, manufacturers of replacement passenger pneumatic tires have been required to restrict new rubber usage to 90 percent of the base period (year ended June 30, 1950) and original equipment tires to 100 percent of the base period.

Tire Production As a consequence passenger car tire production as shown in the chart slumped sharply from the record production rate established in 1950 of 78.6 million units. Output in

Agriculture During 1951

MEASURED by aggregate cash receipts alone, 1951 was the best year on record in American agriculture. Gross income increased sharply to an estimated \$37½ billion, or well beyond the previous peak established in 1948. In terms of net income, however, which is a more accurate indicator of economic well-being, the past year was not as good as two earlier postwar years.

Costs of production expanded almost as rapidly as did gross income with the result that net 1951 cash income of farm operators, estimated at \$15 billion¹, actually fell short of the 1947 and 1948 aggregates. Moreover, because of the rise in prices since those earlier years, the amount of goods and services which could be bought with the realized net income from agriculture in 1951 was perhaps smaller than that which could be purchased with the net incomes in most other years in the past decade.

Although these national averages conceal wide variations among agricultural commodities, agricultural regions, and individual farms, they do serve to indicate trends. Data from farms within the Fourth District tend to substantiate the national trends on income and costs.

Influence of Price Increase The increase in cash receipts has been due to two things: (1) the higher prices for commodities which farmers produce and sell and (2) a slight increase to a new record level in total production. Prices for livestock

and livestock products increased more than those for crops; however, crop production in physical terms increased more than livestock.

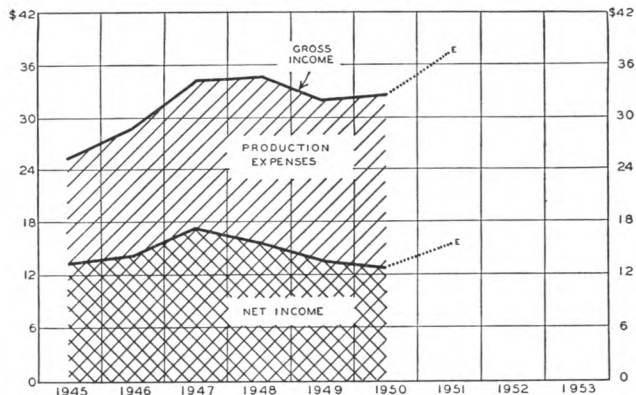
Cash receipts were higher than in 1950 for all of the major livestock commodities, whereas in the case of crops, most of the increase in cash receipts was due to the large crop of cotton. Cash receipts from many of the crops such as corn, wheat, and potatoes were actually down because price increases were not sufficient to offset lighter marketings of those commodities.

Prices paid by farmers for commodities used in production averaged about 10% higher than in 1950 (based on the first nine months of this year). Prices have risen in all important groups of items farmers buy. Increases in prices paid range from about 6% for fertilizer to 24% for livestock purchased for further fattening. Prices for building materials increased 11%, the most of any group of non-farm origin.

It was almost inevitable that the huge physical production of 1951 should entail a larger volume of off-farm purchases. Such purchases were made in a rising market and boosted total production expenses to a new record high.

Strong Demand For Farm Products The economic well-being of agriculture is determined largely by the financial position of the consumers of food and fiber. Continued high-level employment of a growing urban population is closely related to agricultural prosperity. These elements of a strong demand, which have improved during the past year as well as the past decade, accounted for the increased agricultural income during 1951 and their continuation is the basis for the expected main-

INCOME* AND EXPENSES OF FARM OPERATORS (U. S.)
(000,000,000 omitted)



... gross income of farm operators reached a new all-time high in 1951. Net income, however, increased by a much smaller amount because of the concurrent rise in production expenses, and is still noticeably below the 1947 record net.

* Includes Government payments and allowances for non-money income.

E Estimated

Source: Bureau of Agricultural Economics

¹ Exclusive of inventory change.

INDEX OF PRICES RECEIVED AND PRICES PAID, BY FARMERS
(1910-14 = 100)



... prices paid by farmers are virtually the highest on record, but prices received are somewhat below the all-time peak established last February.

Source: Bureau of Agricultural Economics

tenance of this income level through the coming year. The economic status of food and fiber buyers is of course linked very closely with the large defense program.

Supplies of some commodities have been short of consumer demand since the Korean outbreak. Beef is the most common example, although larger quantities are in prospect for the year ahead. Supplies of lamb, mutton, and veal have also been low in relation to demand but the effects have not been so severely felt because of their relatively smaller importance in the average diet. Most other food products have been in normal supply. Some could be thought of as in "tight" supply but could hardly be considered as critical. Fibers such as wool and cotton have also not been available in abundant quantities although apparently not seriously short. The sharp increase in wool prices on the world markets early in the year reflected the heavy and sudden impact of international stockpiling for military purposes on top of an already strong civilian demand and a low supply level. Prices have since declined as demand has been at least partially filled and buying has become more orderly.

Export demand for agricultural commodities was at a high level during 1951 and will likely remain so during 1952. The export market is important for such products as cotton, tobacco, wheat, rice, and some fruits. The proportion of the domestic production of these crops sold abroad in any one year may range from 25 percent to 50 percent. Nearly one-tenth of this country's food output has been marketed overseas during the past decade. Existence of a good export market is significant to farmers in that the disposal of even a relatively small volume of some commodities through these channels can mean the difference between a price depressing domestic surplus or a profitable return.

Another factor closely related to the demand for farm products is the need for greater efficiency in the marketing processes. Although some progress has been made in the past year (such as the new and more efficient check-out counters now appearing in some chain grocery stores), there is still room for more cost cutting. Any technological advancements occurring in the marketing channels are significant in that a large fraction of the food and fiber dollar is paid out for services rendered by persons other than farmers. Lower prices at the consumer level would increase consumption in that more goods could be purchased by persons in the lower income groups.

Technology and High Production

The farm land area of the United States is relatively fixed, whereas the farm population is declining; yet the combined production of food and fiber during 1951 was the greatest in the history of agriculture. Even this new record may be short-lived if

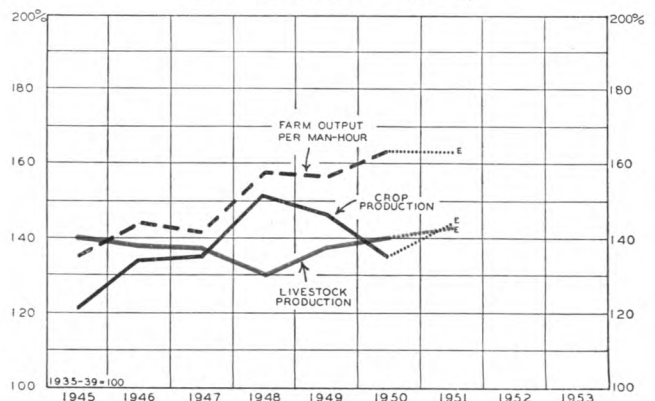
1952 production plans materialize. Record-high production is needed because of civilian, military, and international requirements, and it is doubtful that the agricultural industry of prewar days could have coped with this enormous demand.

In this connection, it may be significant that the large scale off-farm migration of farm people to industry and to the armed forces continued through 1951. The movement caused, and will continue to cause, some temporary and localized farm labor shortages. Over the longer term, small farm enterprises are also gradually being merged into fewer but larger and more economical production units. These changes must be accompanied, however, by a continuously higher output per man if per capita supplies of food and fiber are to be maintained.

Greater farm production is economically feasible from still fewer men by the proper combination and use of more machines, fertilizer, pesticides, improved seeds, and other scientific, natural, and economic resources. Use of machines and chemicals for providing consumption needs was perhaps more important during the current year than at any other time. High "wartime" demands of millions of additional consumers have had to be met out of existing or even diminishing acreage. Aside from weather extremes, farm output in the years immediately ahead depends almost completely upon continued adequate and growing supplies of machinery and production goods.

Fertilizer, a most vital item, will likely be short of the sharply rising demands in 1952. Other goods will probably be available in adequate, but not plentiful, quantities. Recent cutbacks in allocations of steel for agricultural uses has cast some cloud over the prospects for meeting farmer demand for new machinery after 1952.

FARM PRODUCTION AND OUTPUT PER MAN-HOUR (U. S.)

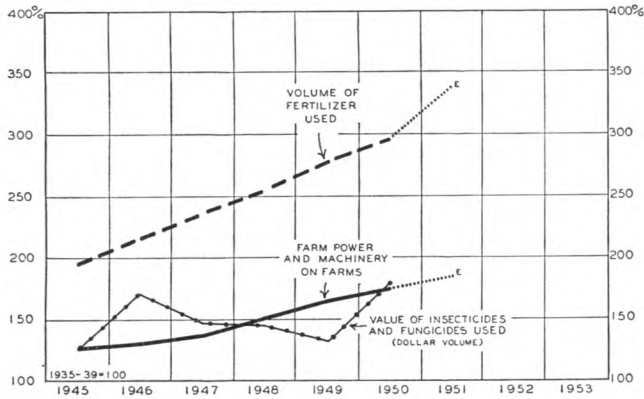


... although neither reached a record in itself, crop and livestock production combined was by a small margin the highest in history this year. The upward trend in labor efficiency was interrupted by the situation in high-labor crops such as cotton.

E Estimated

Source: Bureau of Agricultural Economics

**MECHANIZATION AND TECHNOLOGY
IN POSTWAR AGRICULTURE**



... new records were probably reached in 1951 (as in a number of preceding years) with respect to use of fertilizer, insecticides, power, and machinery, thereby increasing yields and labor efficiency while lessening natural production hazards.

E. Estimated
Source: Bureau of Agricultural Economics

One major threat to the food and fiber supply is that of natural hazards such as weather, insects, and disease. Mechanization has helped considerably by allowing greater speed when the weather is "right", and chemicals have aided the attack on insects and diseases. By contrast, the effects of the Kansas flood on the wheat crop, frost damage to corn in the mid-west this fall, dead pastures during August due to drought, and late heavy boll weevil destruction of cotton, all stand as reminders that even the advanced development of agriculture in 1951 is not sufficient to assure stable and adequate production of each and every crop.

If science finds ways and means of exercising some control over the elements, and such a thought is not completely unrealistic, it would be the greatest possible single contribution toward insuring stable future supplies of agricultural commodities. Results of rain-making experiments during the current year show promise of further progress in the direction of moisture control.

Debt Position of Agriculture Agricultural assets are now the largest on record in dollar value. Most of the sharp gain in the past year, it should be noted, reflects an increase in valuation. One year of declining prices could create a marked shrinkage in value of assets.

Farm real estate debt rose somewhat during 1951 but is probably still below record levels in most areas of the country. Total farm mortgage debt outstanding at the first of this year was \$5.8 billion. This debt was serviced from a \$15.2 billion net income in 1951. This is in decided contrast to 1923, for example, when the debt was nearly twice as large (\$10.8 billion) and

the net income was less than one-third the 1951 figure, or only \$4.8 billion. Cash purchases of farms and larger down payments were more prevalent at least during the first half of the year, but higher sales prices for land resulted in a bigger mortgage debt in spite of the lower proportion of credit financing.

Non-real-estate debt has shown a very marked expansion during the current year. This apparently is attributable to larger loans per enterprise rather than to an increase in number of borrowers. The rising debt has been due mainly to sharp increases in farm production costs resulting not only from mechanization but also from inflation.

Non-real-estate debt was also increased in part by considerable advance buying by farmers in anticipation of possible future shortages of machinery and other production goods. Heavier purchases of higher priced feeder cattle also account for some of the increase.

With a heavy investment of capital funds in machinery and livestock, the need for cash is continuous and growing. With short-term debt growing more rapidly than cash receipts, the possible difficulty which farmers would experience from any disruption of income also becomes more apparent.

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INDUSTRIAL SUMMARY

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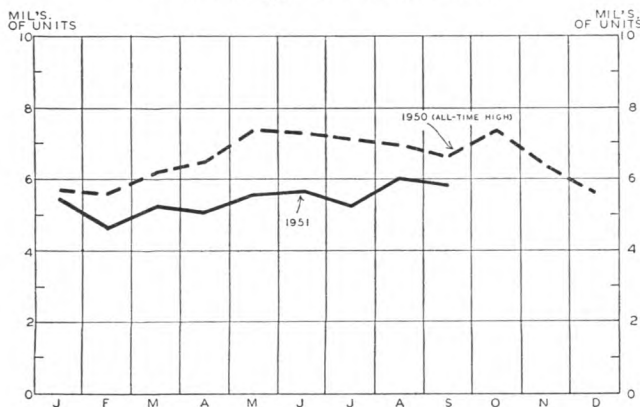
the first 9 months of 1951 was only 49 million units, or a drop of 17 percent from the 59.3 million units produced in the like 1950 months. The decline of this magnitude is accounted for by the slash in new car production which tire manufacturers were unable to offset by shipments for the replacement market by virtue of the 90 percent limitation imposed by NPA order.

Passenger car tire shipments in 1950 attained the record total of 84.7 million units as consumers rushed to buy tires in anticipation of shortages. The surge in buying pulled factory inventories down to 3 million units by the end of the year or the lowest level since the end of the war, and retail stocks were virtually exhausted.

With practically no inventory cushion available this year, factory shipments have just about equaled production. Total sales through September declined 26 percent to 48.4 million units. Shipments for original equipment dropped 23 percent and replacement tires were off 27 percent. Despite this drop in replacement shipments, there has been no particular shortage of tires for consumers as many have been installing casings that went into hoards last year. It is reported that dealer inventories have been gradually built up in recent months and there has been a small gain in factory inventories. The latter are only about one-half of what might be considered a normal level.

In contrast to the situation with regard to passenger car tires, production of truck and bus casings increased to 12.5 million units, or a gain of 24 percent in the first 9 months of this year as compared with the like 1950 period. Shipments gained about 12 percent and were adequate to support the rise in new

U. S. PASSENGER CAR TIRE PRODUCTION 1951 As Against Previous Year



... despite the brake on new rubber consumption, production of tires improved gradually throughout the year to a level only moderately below the 1950 record.

Source: The Rubber Manufacturers Association

truck production and greater usage by the motor trucking and bus industry. In addition, factory inventories rose some 26 percent but were still abnormally low in relation to current output.

The over-all reduction in civilian motor vehicle casing production and rubber consumption has been just about replaced with activity on defense contracts. Substantial contracts are being filled for airplane and army vehicle tires, tank treads, and a wide range of other defense products. As a consequence Akron rubber factories increased manufacturing employment from 53,700 in September 1950 to 56,700 in September 1951 with a further gain expected in November. Rubber consumed for defense contracts is not deducted from base period quotas, so manufacturers have considerable incentive to seek these contracts.

Machine Tools Within a matter of days after the start of the Korean War an avalanche of orders began to roll over the machine tool industry. The crest was reached last February, when new orders were 516 percent above the 1945-47 average. By October this had subsided to about 400 percent, but the industry's backlog of work has continued to rise.

In June 1950 unfilled orders amounted to about five months' work at the then-prevailing rate of production. By the first of the year, this had leaped to 15 months and in October 1951, backlog was nearly 22 months at the current rate of shipments which were more than double the June 1950 output. During World War II, the maximum backlog of work was 13 months.

The need to stimulate machine tool production and its vital role in the defense buildup was slow to receive recognition. The industry itself was in a seriously weakened condition after nearly a half decade of slack business, and when it attempted to expand again, there were numerous obstacles to overcome. The more important, to mention a few, were lack of capital, loss of skilled workers, frozen wages, prices fixed at unrealistically low levels, and shortages of raw materials and components.

The list of incentives now available to machine tool producers is quite impressive, but it was not until recent months that these all finally became effective. The major changes include the following:

1. Ceiling prices have been modified to permit allowance of nearly all cost increases including labor overtime and subcontracting costs which in some cases are more than twice those of the prime contractor.

2. Pool orders have been placed and more adequate provision made for advance payment on these orders.

3. V-loan assistance is available to nearly all machine tool builders for working capital. In addition, these loans may also be made by special arrangement for fixed capital needs.

4. Machine tool builders' applications for certificates of necessity are given prior attention.

5. Priority assistance is now available to obtain scarce components and supplies.

6. Some companies have been permitted to pay over-ceiling wages to hold and attract needed labor.

Good progress has been made in raising the rate of shipments. In January of this year, the National Machine Tool Builders Association value of shipments index stood at 114.3 (1945-47 is 100). By October, the index had moved up to 221, but it was still lower than the rate of incoming orders.

Perhaps the most effective way of speeding up production is through subcontracting. This includes not only essential parts and components but also the entire machine. Since the recent permission to include all subcontract costs in ceiling prices, much progress has been made in locating suitable manufacturers and farming out of jobs. Restrictions on output of civilian type products and machinery has also begun to interest more producers in finding suitable machine tool work. One District machine tool builder recently signed a contract with a Vermont marble quarrying and processing company to produce lathes. Other contracts have been made with motor car builders and printing press manufacturers.

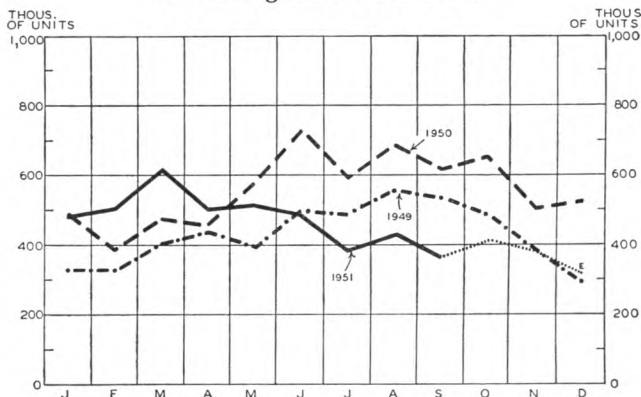
Two problems now rank at the head of the machine tool builder's list. Manpower is still being lost to other defense plants and it is difficult to recruit suitable people to train properly so as to raise production in their own plants. The other problem is materials. Although priority assistance is available — at least on paper—there are many delays in completing needed tools because of the shortage of a wide variety of components.

Motor Vehicles Despite ever tightening restrictions on the use of steel, copper, and aluminum, United States' producers of passenger cars will turn out in 1951 the second largest volume on record. Output this year may approximate 5.4 million units, a drop of 19 percent from the 6.7 million passenger car record of 1950, but 6 percent larger than the next best year attained—1949.

The accompanying chart shows the steady downward slide of production. The industry went all out in the first quarter of the year to mark up the largest initial-three-month output on record of 1.6 million units. Every trick in the bag was brought out to obtain and stretch material supply before the restrictions on production were tightened at the start of the second quarter.

Second-quarter production was reduced by NPA order which limited consumption of steel, copper, and aluminum to 80, 75, and 65 percent, respectively, of the amounts consumed in the first half of 1950 with adjustments for inequities such as strikes during the base period. As a consequence, output of passenger cars was cut to about 1.5 million units.

U. S. AUTOMOBILE PRODUCTION 1951 As Against Previous Years



... by virtue of a record-breaking first quarter, 1951 production was the second largest in history. Fourth-quarter NPA allowance of 1.1 million units has been exceeded only twice for that period.

E Estimated

Source: Automobile Manufacturers Association

For the third and subsequent quarters, NPA introduced the device of establishing maximum unit production quotas for individual manufacturers and then allocating sufficient material to attain these quotas. The maximum output permitted in the third quarter was 1.2 million passenger cars, and producers actually turned out only 26,000 units less than this amount.

In the fourth or current quarter, NPA further restricted allowable production to 1.1 million cars. Model changes and inability to obtain the necessary metals may cause production to fall somewhat short of this figure. Output in the initial quarter of 1952 is to be further restricted. Allocation of steel, copper, and aluminum will permit an outturn of only 930,000 passenger cars, but manufacturers can produce up to about a million units if they draw down factory stocks of parts and materials. It appears to be the present intention of NPA to permit the building of about 4 million cars in 1952.

In retrospect, permitted car production this year was not far out of line with consumer demand. After the first-quarter buying rush, demand slackened appreciably so that new car inventories were built up in the first half of the year. Although the three major manufacturers used their entire material allocations in the third quarter, other producers did not, primarily because of heavy dealer inventories and the difficulty of financing them. Since mid-year, sales have outrun production so that there has been a general reduction in new car inventories. Domestic supply was also reduced somewhat since manufacturers increased exports in the first half of the year to an annual rate of 310,000 units compared with 135,000 units in 1950.

The relaxation of Regulation W credit terms and the impending increases in excise taxes and new car prices stimulated buying somewhat early in the fourth quarter. It seems likely, however, that the cumulative effect of price and tax increases, together with the record production rates of the past three years, may dampen down consumer demand over the near term so that presently contemplated production restrictions may not prove too onerous.

Construction Activity Although declining in recent months, District construction activity remained at high levels throughout most of 1951. Government controls and materials shortages, principally structural steels, brought about the recent declines. However, the drop has been moderate and the margin gained over the 1950 record dollar volume during the first six months has been narrowed—not erased.

The peak in construction contract awards, as compiled by the F. W. Dodge Corporation, came in May. By October, residential awards had dropped 31 percent from the \$83 million May level, while total awards were down 50 percent from a record \$230 million May total (excluding A.E.C. projects). However, residential construction began to run behind the record year-ago level in April whereas nonresidential awards maintained a margin over the year-ago months through June. Consequently, the total still had a 2 percent margin over the 1950 record at the end of 10 months while residential awards show a 3 percent deficit over the same period. In both instances, record levels of activity during the early months offset recent declines.

Government controls have affected the different types of construction unevenly. The dollar volume of awards by utilities in the Fourth District totaled nearly \$109 million at the end of 10 months, just 3 percent short of the 1942 wartime peak, while awards for industrial buildings during the first three quarters aggregated about \$233 million, topping all postwar years but nearly 30 percent below the 1942 peak. All other forms of construction will close the year below the peak dollar volume attained in 1950. For residential construction the drop will be moderate but social and recreational building projects will be off about 50 percent under the impact of very tight restrictions.

Construction costs hit new highs during the year. The wholesale prices of building materials reached new peak levels in March and April only to undergo moderate declines in subsequent months. However, construction cost indexes continued to edge upward due to rising labor and overhead costs.

Cement The output of District portland cement mills aggregated nearly 17 million barrels through the first three quarters of the year, or 18

percent above the similar year-ago period. Even this record output was insufficient to meet the seasonal demand peak during the fall months as large engineering, defense, and airport projects took cement at an unprecedented rate.

For a time, the cement shortage forced cement block plants to work short hours and delayed numerous construction projects. To keep jobs going, contractors bought cement wherever they could and even imported cement from as far away as Missouri. Inclement weather in November, however, slowed down building activity and cement stocks began to accumulate again.

District cement mills have indicated an intention to push production this winter in an effort to replenish depleted mill stocks.

Brick Ohio brick production should reach a new high in 1951. During the first six months, production was 16 percent above the first half of 1950 record pace, but this margin was reduced to 9.5 percent in the following two months as activity slackened somewhat.

Shipments of brick have closely paralleled production this year and stocks depleted by record shipments in 1950 have not been restored.

The effect of the decline impending in construction activity upon the brick industry is still uncertain. It seems likely that the upswing in industrial and utility construction may largely offset the decreased needs for brick occasioned by declines in other segments of building activity, notably commercial, residential, and public work such as schools. Some further decrease appears inevitable, but not in sufficient force this year to erase the margin already gained over 1950. Volume in 1952, however, may shrink perceptibly.

Shoes Ohio shoe manufacturers turned out 8 percent more shoes in the first nine months of 1951 as compared with 1950, but the expansion in output was from a relatively low base. Production in 1951 was only 16 percent over the 1935-39 average whereas total nondurable goods manufacturing activity was nearly double the 1935-39 average.

However, the modest gain in Ohio production (which accounts for about 5 percent of national output) was not generally shared by shoe manufacturers throughout the nation as total United States production was virtually unchanged from 1950. Total shoe production has declined 15 percent since 1946 while all manufacturing activity combined expanded 36 percent.

Even with production of shoes and leather products held down, there was considerable inventory accumulation during the first half of the year, but subsequent to June these stocks were substantially reduced. September factory inventories were only 8

percent above the year-ago level as compared with a 23 percent rise for all nondurable goods. Recent declines in hide and leather prices have enabled manufacturers to reduce shoe prices somewhat in an effort to stimulate sales.

Pottery and Glass The dinnerware branch of the ceramic industry, a major part of which is located in this District, was operating very close to capacity a year ago. Operations at present are between 75 percent and 80 percent of capacity.

The drop in activity is attributable to several factors. Consumer demand has been disappointing and retail stores have returned to customary inventory practices following the wave of buying about a year ago. In addition, there has been a steadily rising volume of imports of competitive dinnerware—chiefly from Japan. Prices of Japanese ware are said to be lower than domestic costs of production. There is every indication that imports will continue to rise in the months ahead as Japan strives to increase dollar earnings with which to buy other American products.

The hand-made glassware industry production experience in 1951 roughly parallels that of the dinnerware industry. Orders picked up seasonally for the Christmas and gift trade but the spurt was short lived and of disappointing dimensions. Increased foreign competition from European sources is also taking place.

The glass container industry, however, is experiencing the best year since 1946, largely as the result of restrictions on the production of metal cans and containers. At the end of 9 months, industry shipments reached 90.1 million gross, compared with 80.9 million gross in 1950, and production totaled 93.1 million gross as against 77.1 million gross in the first three quarters a year ago.

September production dipped 14 percent from August and shipments were down 11 percent. Exports this year exceeded the year-ago volume but the trend has been downward in recent months. Inventories of glass containers at the end of September were 9.8 million gross or equal to one month's supply at the September rate of shipment and about double the year-ago quantity.

Coal District bituminous coal production through September of 146.2 million tons was only 3 percent ahead of the comparable 1950 total, but it

was the largest since 1948. District output lagged somewhat behind total United States production for this period which showed an advance of nearly 6 percent.

Major District producers further expanded their coal washing and preparation facilities in an effort to improve competitive positions by providing a better and highly standardized product. Strip mining operations advanced further and now account for the largest proportion of total output on record.

The demand for metallurgical coal has been very strong all year and promises to continue as long as steel production is at a high rate. Utilities likewise have taken more coal as electrical output continued to gain. Railroad demand, however, declined again as dieselization made further inroads on this market.

In the last few weeks domestic sales of retail dealers have become very strong and have found dealers low on inventories. Apparently many localities that expected to convert to gas and oil this winter found this impossible and so are back in the market for at least another heating season. The coal mines that have rates for tidewater shipments are experiencing heavy demand from European sources.

Paints and Varnishes The current situation in the District paint industry varies considerably by department or class of sale as compared with a year ago.

Total dollar volume for the first three quarters was about 8 percent ahead of 1950. Sales to the trade (dealers and retailers) were up only nominally, however. In this segment of the market, dealers stocked up very substantially a year ago and continued to buy heavily during the fall season. Buying then slacked off to a very cautious level for nearly six months. Dealers have now largely worked off their excess inventories and orders are being placed in good volume.

Industrial sales for the first 9 months are 16 percent ahead of the comparable 1950 period. Industrial users, however, are attempting to work on a hand-to-mouth basis as business prospects become more uncertain. Sales to the metal working industry have been reduced as a result of allocations. Furniture production is also slack and demand for finishes has been drastically curtailed. To date, demand by defense industries does not promise to replace fully the reductions in civilian goods.

More Food and Better Health

by CLYDE WILLIAMS, Director, Battelle Memorial Institute



The world's food problem may be divided into two parts. First, greater quantities of food must be made available from a diminishing land acreage to feed steadily increasing populations. Secondly, in the face of widespread malnutrition, higher quality, or more nutritious, foods must be produced to maintain and restore human health. A plentiful and balanced supply of the required nutrient elements in the many varieties of

soils can contribute greatly to solving this two-fold food problem.

Much progress has already been made in the mechanization of farming, in the creation of better types and uses of crops and livestock, in crop protection, and in soil improvement. Unconventional methods for increasing the food supply, such as through exploiting the resources of the sea, are being explored. Each of these levels of agricultural research has its place in solving the over-all food problem. Soil improvement, at least at present, is perhaps the most basic of all. Our health, even our survival in a free world, rests on the most fundamental physical need of man—adequate nutrition. This can be ours only if it stems from soils that are not minerally deficient.

Soil scientists and farmers are, becoming conscious that it takes more than NPK (nitrogen, phosphorus and potassium), water, and sunshine to make a good crop. Nearly a score of different mineral elements must be supplied to produce a normal and healthy crop, animal, or man. Many of these elements, like copper, iron, cobalt, zinc, manganese, and boron are needed only in very small amounts, but without them there could be no life.

All vital processes, from growing and reproducing to thinking and dreaming, are controlled by enzymes. At the heart of each enzyme is one of the elements in question. In plants the all-important function of chlorophyll requires copper, iron and magnesium. Boron, manganese, and zinc are necessary for plant growth. Sulfur is required in plant proteins. Swayback, anemia, and other poor-growth conditions in livestock have been traced to the lack of essential mineral elements in the animals' diet.

Likewise in humans, iron, copper, and cobalt are necessary for the hemoglobin of the blood. Iodine is essential to the thyroid gland, zinc to insulin, and manganese to the pituitary and sex glands. Frequently, a few parts per million of these and other mineral elements in our diet is all that stands between us and ill health.

There is increasing evidence that the health of people is directly associated with the condition of the soil which sustains them. Such evidence, for example, may be seen in

the iodine-deficient goiter belt of Minnesota and adjacent territory; in the high incidence of anemia in Florida children where the soil is deficient in iron, copper, and cobalt; and in the correlation between health and soil composition in different parts of India.

Some of the necessary elements have never been adequately present in many of our soils. Conversely, some soils originally contained sufficient supplies of all needed elements in available form, but these have been lost through erosion, or through continued cropping with no attempt made to return removed nutrients to the soil.

There are areas of such acute mineral deficiencies that crops and livestock cannot be grown until the needed elements are added or restored, as in parts of Florida and California. Much more widespread are the areas of marginal soil deficiency where fair growth is obtained, and where deficiencies are not apparent until complete fertilization results in increased vigor of growth.

What can restoration of soil fertility mean to agriculture? First, it means more and better crops and livestock, and with these, greater income to the farmer. The Borders farm in Kentucky, Louis Bromfield's Malabar Farm in Ohio, and many others over the United States, where a program of complete fertilization has been adopted, show the abundant increases in yields over those that had formerly been considered normal for the areas. Spectacular gains in livestock production have also resulted.

Complete fertilization can also restore to usefulness acreage that is considered unsuitable for agriculture. For instance, there is a 90-mile stretch of land in Australia which cannot be farmed because of a lack of phosphorus, copper, and zinc. These are now being applied and the area is being transformed into good agricultural land.

Perhaps most important is what complete soil fertility can mean to society as a whole. The population of the world continues to increase at the rate of 20,000,000 a year, while the amount of arable land decreases. It has been estimated that half of the world's population, or over 1 billion persons, is either starving or undernourished. More productive, more fertile, soils could support population increases for many years to come; they could also minimize malnutrition.

In recent years, the importance of a balanced, adequate supply of minor elements in the soil in available form has been rapidly passing from speculation to constructive action. Complete mineral analysis, at reasonable cost, may soon be within the reach of every farmer, doctor, and nutritionist. We are looking forward to the establishment of a national analytical service designed to perform a great number of the needed analyses with the speed and economy of the modern industrial production line. The cost of establishing such a national analytical service will represent a mere fraction of its value to agriculture and human health in the United States. Adoption of such a service by other countries could go a long way toward stemming the tide of hunger and suffering which promotes unrest and world conflict.

Editor's Note—While the views expressed on this page are not necessarily those of this bank, the *Monthly Business Review* is pleased to make this space available for the discussion of significant developments in industrial research.