Secondary Metals—Nonferrous

By Archie J. McDermid

A common problem of the nonferrous secondary metals industry in 1958—as with most of the metals industry—was oversupply of primary metal, resulting from output stimulated by Federal Government inducements and higher market prices in 1957 and preceding years. Annual recoveries of all nonferrous secondary metals dropped below those of 1957. Oversupply prevailed until late in 1958 when curtailments in primary metal production began to increase the market price, and business improved for the secondary metal producers, notably those dealing in copper. The tightening of primary copper supplies was strengthened in part by labor strikes in Northern Rhodesia, Chile, and Canada, adding impetus to the demand for copper scrap. In October custom and secondary smelters and in December brass mills bought more copper scrap than in any other month. Thus the decline in copper recovery from secondary sources—5 percent below the 1957 figure—was less than in other nonferrous secondary metals.

<table>
<thead>
<tr>
<th>Metal</th>
<th>From new scrap</th>
<th>From old scrap</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short tons</td>
<td>Value (thousand)</td>
<td>Short tons</td>
</tr>
<tr>
<td>Aluminum</td>
<td>289,360</td>
<td>$146,965</td>
<td>72,459</td>
</tr>
<tr>
<td>Antimony</td>
<td>2,681</td>
<td>1,805</td>
<td>19,984</td>
</tr>
<tr>
<td>Copper</td>
<td>397,296</td>
<td>239,223</td>
<td>444,402</td>
</tr>
<tr>
<td>Lead</td>
<td>57,346</td>
<td>15,401</td>
<td>431,853</td>
</tr>
<tr>
<td>Magnesium</td>
<td>5,997</td>
<td>3,946</td>
<td>5,061</td>
</tr>
<tr>
<td>Nickel</td>
<td>5,319</td>
<td>8,349</td>
<td>6,718</td>
</tr>
<tr>
<td>Tin</td>
<td>10,670</td>
<td>20,532</td>
<td>16,594</td>
</tr>
<tr>
<td>Zinc</td>
<td>157,915</td>
<td>44,206</td>
<td>76,789</td>
</tr>
<tr>
<td>Total</td>
<td>481,457</td>
<td></td>
<td>505,898</td>
</tr>
</tbody>
</table>

| Metal      | 1958           |                |           |                |           |                  |
|------------|----------------|----------------|-----------|
|            | Short tons     | Value (thousand) | Short tons | Value (thousand) | Short tons | Value (thousand) |
| Aluminum   | 225,428        | 111,407         | 64,127    | 31,992         | 289,555    | 143,099          |
| Antimony   | 2,675          | 1,699           | 16,840    | 10,097         | 19,515     | 12,396           |
| Copper     | 386,021        | 203,947         | 411,267   | 216,879        | 707,338    | 419,426          |
| Lead       | 95,518         | 15,688          | 343,269   | 90,325         | 401,787    | 94,018           |
| Magnesium  | 3,933          | 2,773           | 4,774     | 3,366          | 8,707      | 6,139            |
| Nickel     | 3,333          | 5,216           | 4,088     | 6,417          | 7,411      | 11,033           |
| Tin        | 10,334         | 19,654          | 15,203    | 28,917         | 25,539     | 48,571           |
| Zinc       | 160,406        | 32,723          | 69,926    | 14,265         | 230,323    | 46,988           |
| Total      | 430,212        |                | 392,058   |              | 722,270    |                  |

2 Revised figures.

3 Commodity specialist.

The assistance of Ivy C. Roberts, statistical assistant, is acknowledged.
TABLE 2.—Secondary metals recovered as unalloyed metal, in alloys, and in chemical compounds in the United States in short tons

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>278,025</td>
<td>292,041</td>
<td>335,994</td>
<td>339,768</td>
<td>361,819</td>
<td>289,555</td>
</tr>
<tr>
<td>Antimony</td>
<td>21,885</td>
<td>22,358</td>
<td>25,702</td>
<td>24,106</td>
<td>22,565</td>
<td>19,515</td>
</tr>
<tr>
<td>Copper</td>
<td>856,866</td>
<td>839,907</td>
<td>880,004</td>
<td>900,664</td>
<td>841,887</td>
<td>797,268</td>
</tr>
<tr>
<td>Lead</td>
<td>474,120</td>
<td>480,625</td>
<td>502,051</td>
<td>506,755</td>
<td>489,220</td>
<td>401,787</td>
</tr>
<tr>
<td>Magnesium</td>
<td>10,074</td>
<td>8,200</td>
<td>10,246</td>
<td>10,529</td>
<td>10,658</td>
<td>8,707</td>
</tr>
<tr>
<td>Nickel</td>
<td>7,782</td>
<td>8,505</td>
<td>11,540</td>
<td>14,360</td>
<td>12,027</td>
<td>7,411</td>
</tr>
<tr>
<td>Tin</td>
<td>31,908</td>
<td>26,334</td>
<td>31,743</td>
<td>32,973</td>
<td>27,174</td>
<td>22,359</td>
</tr>
<tr>
<td>Zinc</td>
<td>266,064</td>
<td>271,774</td>
<td>304,775</td>
<td>281,355</td>
<td>294,104</td>
<td>230,332</td>
</tr>
</tbody>
</table>

1 Revised figure.

Recovery of secondary lead and zinc decreased 18 and 13 percent, respectively, largely because of earlier overproduction and foreign competition. The losses in these metals were not regained, despite curtailed domestic output, as they were for copper. Import quotas in October began limiting U.S. imports to 80 percent of the yearly average for 1953–57, firming the market somewhat, but this event came too late in the year to affect the scrap-metal industry appreciably.

Recovery of secondary aluminum dropped 20 percent from 1957, reflecting in part the increased availability of primary metal and instability of the market created by Soviet offerings of this metal in the world market. Domestic primary aluminum producers manufactured considerable quantities of primary wrought and casting aluminum alloys, competing with secondary smelters and selling to aluminum rolling mills and foundries. Primary copper producers sold refined copper chiefly in unalloyed form to brass mills and foundries.

Consumption of nearly all items of nonferrous scrap declined; important exceptions were No. 2 copper scrap that increased 24 percent and low-grade scrap that increased 19 percent, both at secondary smelters.

Although copper scrap was reported to be scarce, stocks of the major kinds of nonferrous scrap increased at plants of most types of consumers. Nearly all zinc scrap items participated in a 47 percent increase in total stocks. Battery-lead-plate-scrap stocks were 87 percent higher at the end of 1958 than at the beginning, but stocks of other lead scrap, except soft lead and solder, declined. Stocks of aluminum scrap, held chiefly by secondary smelters, increased 9 percent. Stocks of copper scrap increased 3 percent, owing to activity at secondary smelters and brass mills; stocks at primary producers and foundries declined.

The prices of nonferrous scrap to consumers varied during the year according to changes in the market prices of the primary metals. Quotations for the scrap grades of lead and zinc remained comparatively unchanged throughout the year. In the New York City area heavy lead scrap averaged 8.75 cents a pound, and old zinc, 3.12 cents a pound in January 1958. In December the price of lead scrap was 8.12 cents, increasing from the low of 6.65 cents in September. The price of old zinc scrap remained stationary through September but rose to 3.62 cents in December.
Dealers bought new aluminum clippings in New York during the year at prices ranging from a high of 13.52 cents a pound in January to a low of 12.75 cents during the summer months, rising to 13.25 cents in December 1958.

Market quotations of aluminum, lead, and zinc scrap were relatively unchanged, but prices for copper scrap fluctuated more widely and frequently during the year. In January custom smelters were paying as high as 19 cents a pound for No. 2 scrap, in February, as low as 17.25 cents. The high point of the year came in October when custom smelters purchased the largest quantity (copper content) at 25 cents a pound. The price declined thereafter to about 23 cents.
<table>
<thead>
<tr>
<th>Kind of plant</th>
<th>Type of material used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aluminum</td>
</tr>
<tr>
<td>Primary plants</td>
<td>30</td>
</tr>
<tr>
<td>Secondary smelters</td>
<td>118</td>
</tr>
<tr>
<td>Secondary distillers</td>
<td></td>
</tr>
<tr>
<td>Primary distillers</td>
<td></td>
</tr>
<tr>
<td>Chemical plants</td>
<td>11</td>
</tr>
<tr>
<td>Brass mills</td>
<td></td>
</tr>
<tr>
<td>Wire mills</td>
<td>19</td>
</tr>
<tr>
<td>Foundries and miscellaneous</td>
<td>135</td>
</tr>
<tr>
<td>manufacturers</td>
<td></td>
</tr>
</tbody>
</table>

1 Plants indicated in each column used material of the metal heading the column in products of that base; for example, 72 secondary smelters used copper materials in copper-base products.

2 Excludes aluminum foundries not consuming aluminum scrap.

Table 4 indicates the relative importance of the elements in the major kinds of nonferrous scrap. The data were calculated by applying composition and recovery factors to consumption totals for all items of aluminum, copper, lead, and zinc scrap reported consumed, about 100 items altogether. The largest percentage of impurities occurred in zinc scrap, principally because its residues are high in oxygen. The high percentage of impurities in lead scrap is due to the relatively low lead content of battery-plate scrap, the principal lead scrap item. Scrap items containing iron scrap and drosses and skimmings tended to increase the average impurity in copper and aluminum scrap. Although these impurities were metallurgical problems for the processors, they do not represent unrecoverable material, because the iron can often be salvaged by sweating, and the oxides that are collected as flue dust can be reprocessed.

<table>
<thead>
<tr>
<th>Kind of scrap</th>
<th>Composition (percent)</th>
<th>Total consumption, short tons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aluminum</td>
<td>Antimony</td>
</tr>
<tr>
<td>Aluminum</td>
<td>76.99</td>
<td>.02</td>
</tr>
<tr>
<td>Copper</td>
<td>.62</td>
<td>.02</td>
</tr>
</tbody>
</table>

1 Chiefly iron and silicon.

The grades of aluminum, copper, and lead scrap consumed by smelters, primary producers, and other classes of consumers were virtually the same as in 1957. For example, the recoverable metal content of lead scrap consumed by smelters was 78 percent in 1958 and 77 percent in 1957. The recoverable metal content of aluminum scrap consumed by primary producers was 95 percent compared with 96 percent in 1957. The grade of zinc scrap at smelters increased from 74 percent recoverable zinc in 1957 to 76 percent in 1958.