it impossible for the user to identify the source. For example, even with a one-letter error, *J. An. Chem. Soc.* will be recognized as *J. Am. Chem. Soc.*; however, JADS, again with a wrong letter, will not always be recognized as JACS, for it could easily be a wrong rendering of JABS. In order to retain some redundancy, Chemical Abstracts Service is now investigating the possibility of using a 10-letter code.

In summary, what was started as a small segment of a computer-based chemical-information system has now become an important managerial tool for the Chemical Abstracts Service.

Converting Foreign Language Chart Legends

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In preparing translations of foreign technical literature, the conversion of foreign-language figures into English presents problems beyond the mere translating of the text itself. The ideal treatment of figures should be to convert them into a form just as graphic and readable as the original, with all the legends, symbols, and notations in their proper place—but in English. Furthermore, it should be possible to make multiple copies of these as required.

In the case of simple graphs, it might be enough merely to supply a translation of the main caption and the abscissa and ordinate designations along with the original figure; but complex graphs with many legends and notations in the figure itself would require supplying an extensive glossary and would make the figure difficult for the reader to interpret. Hence there is the necessity for an improved method, with the use of a duplicating machine, in which the English legends supplied by the translator are written on small strips of paper by the typist and pasted on a copy of the original; from this "doctored" plate any number of other copies are made. Furthermore, the method has to be such that a typist unfamiliar with the language and the science involved, using only the written instructions of a translator who might be unavailable for consultation, could transform the original figure into an exact English equivalent.

First of all, of course, the translator must not fail to supply all the information needed, which means translating absolutely all the foreign-language notations in the figures—translating almost literally everything except the numbers and some international symbols and letters. The *form* in which the translator supplies this may vary. For example, in translating Figure 1a, two figures from a German metallurgy text, the translator, after giving the main caption, might write, "Abscissa: melt output of the cupola furnace (nominal yield). Ordinate, far left: permissible dust output in kg./metric ton of iron. Ordinate, next right: degree of dust removal (etc.). Legend on curve: operating hours of the cupola installations (etc.)." Or, the translator might draw a rough copy of the diagram and write in the translated legends in their place. Or he might letter these clearly on a transparent overlay placed over the figure (this method proved particularly useful for geological maps with a multitude of place names). The exact form is not important so long as all the information is there and the instructions to the typist are carefully distinguished from the text itself.

Now the typist makes a first copy of the original figure on the duplicating machine and touches this up wherever the printing from the original is unclear. The translated legends are written finely on small strips of white paper cut in a size and shape to fit the original legends. Sometimes the lower or upper ends of words like p, d, h, and g have to be shortened. The strips are pasted in their proper places on the first copy. They should cover the original legends fully but not cover any line, curve, symbol, or figure, not even partially. No symbol or expression, however small, should be omitted; for example, the notations kg/t and t/h are left untouched. Figure 1b shows the foreign-language legends blanked out; Figure 1c shows the result of pasting. It is seen that the copies are approximately as sharp as the original. These copies are then cut out and pasted onto the typed translation in spaces left for this purpose above the typed main captions of the figures.

This method is applicable not only to graphs but also to line drawings, such as diagrams of apparatus of flow charts.

Tables of figures also require special treatment. Firstly, the translator should draw the outlines of the table in skeleton form and write on their proper place the complete

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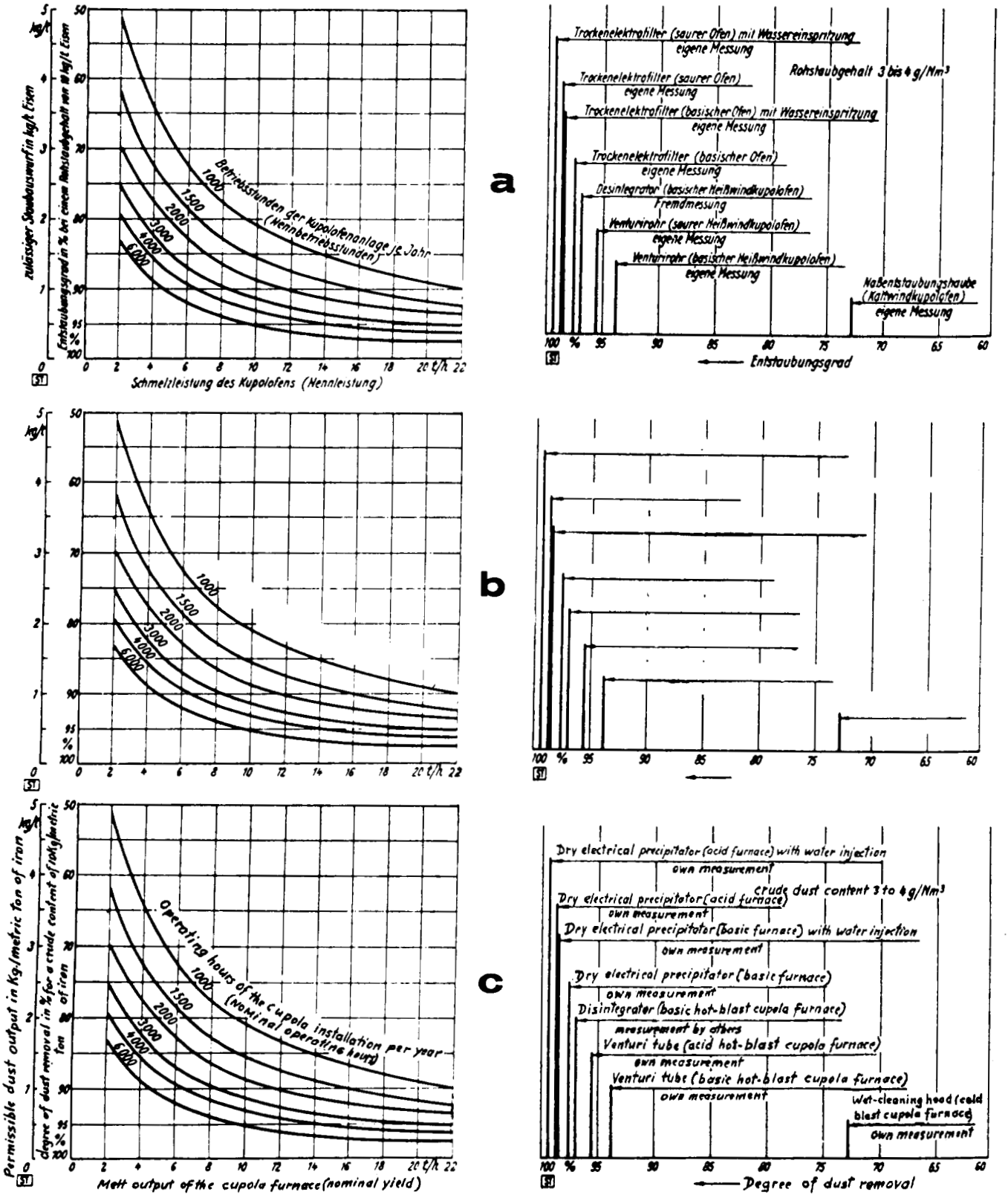

Figure 1.

English column headings and lines, including those which require no translating, such as "°C." He should scan the figures carefully for foreign terms buried among them but need not actually copy any figures.

Then, if the table is fairly small, the typist outlines it similarly, types in the English column headings, and copies the figures from the original. If it is larger, she "doctors" the table by pasting the English headings written on strips of paper, as above, and reproduces the pasted copy.

This method has been used successfully for several years by Singer, Smith and Co. of New York.