A MINERAL SPECIFIC GRAVITY CHART

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Specific gravity can be used very successfully as an aid to mineral identification. Various easy and rapid methods of determining specific gravity have been developed, such as those using heavy liquids,[1] direct-reading balances,[2] and constant volume pyknometers.[3] But there has been no table or chart known to the writer giving for any determined specific gravity a list of all the common minerals with a range including that point. In order to fulfill this need the accompanying chart was prepared.[4]

Each horizontal line on the chart designates a specific gravity. The magnitude of the gravity is shown by the figure printed above each line at the right and left margin. The range of the chart is from 1.40 to 22.00. The spaces between the horizontal lines represent different amounts at different levels. Thus between 1.40 and 2.00 and between 4.00 and 5.00 the interval between the lines is .1. The interval between 2.00 and 4.00 was cut to .02, due to the preponderance of minerals with specific gravities lying between 2 and 4.[5] Between 5.00 and 10.00 the interval is 1.00 and between 10.00 and 22.00 it is 2.00. The top of the chart contains the names of 540 minerals arranged in alphabetical order. Vertical guide lines separate the mineral names and extend down to the bottom of the chart. Three styles of type were used in printing the mineral names: bold face for those most common, italics for those least common, and plain face for the intermediate group. The separation was purely arbitrary and the writer realizes that many of the minerals would be put in different classifications by other mineralogists. A vertical line stands between the guide lines beneath each mineral name and by its length and position gives the range of specific gravity for that mineral. Three weights of

[1] Spencer, L. J., Specific gravities of minerals: *Mineral. Mag.*, vol. **31,** pp. 337–366, 1927. Landes, K. K., Rapid specific gravity determinations with Clerici's solution: *Amer. Mineral.*, vol. **15,** pp. 159–162, 1930.

[2] Rogers, Austin F., A new specific gravity balance: *Science*, N. S., vol. **34,** pp. 58–60, 1911. Kraus, E. H., A calculating jolly balance: *Amer. Mineral.*, vol. **11,** pp. 169–172, 1926.

[3] Ellsworth, H. V., A simple and accurate constant volume pyknometer for specific gravity determinations: *Mineral. Mag.*, vol. **21,** pp. 431–435, 1928.

[4] Chart prepared through the aid of a grant from the Graduate Research Fund, University of Kansas.

[5] L. J. Spencer, *op. cit.*, p. 340.

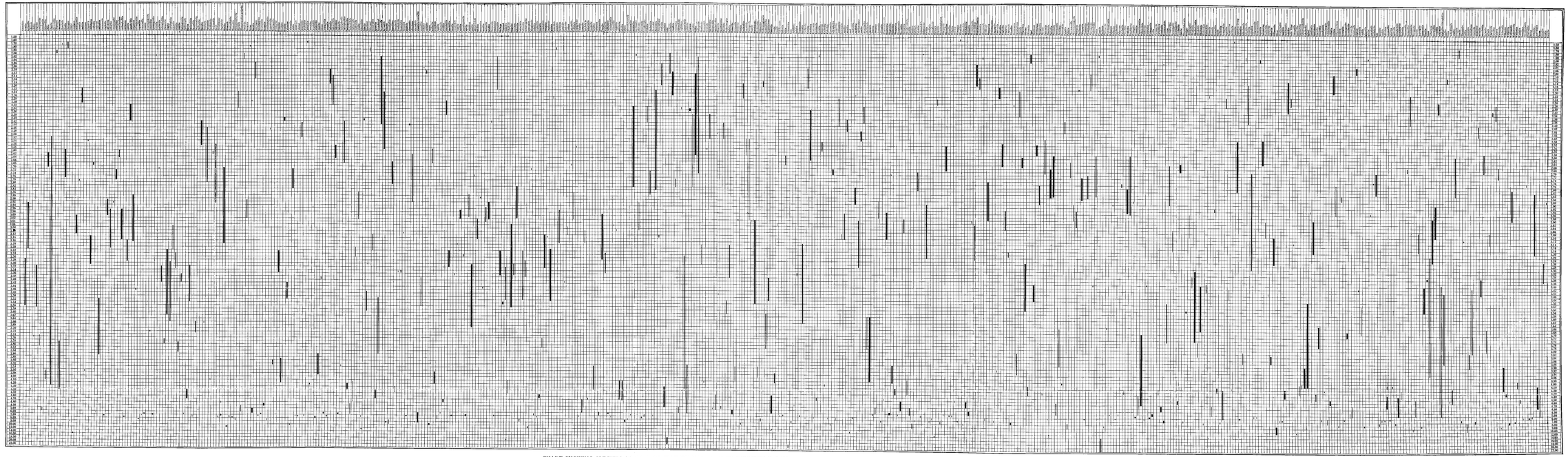

CHART SHOWING SPECIFIC GRAVITY OF COMMON MINERALS BY KENNETH K. LANDES

lines are used, the heaviest for mineral names printed in bold face, the intermediate weight for mineral names printed in plain face, and the lightest for mineral names printed in italics.

Sources of specific gravity data were largely Dana's System of Mineralogy and L. J. Spencer's "Alphabetical list of minerals giving the minimum and maximum recorded values of specific gravity."[6] In a few cases original articles were consulted. The attempt was made to give the maximum range of recorded determinations for each mineral. Undoubtedly some of the determinations are inaccurate due to laboratory errors or the use of impure material in which case the ranges given on the chart may be too great. Minerals that are found only as rarities in one or two districts were omitted from the chart in order to keep it from becoming too cumbersome.

Although the chart can be used to find the approximate specific gravity of any of the 540 minerals listed it was designed to be used primarily in mineral identification. The specific gravity of an unknown mineral is determined and the line having the nearest value to that figure traced (with the aid of straight edge or ruler) across the page. It will intersect a number of vertical lines and the unknown may be any one of the minerals belonging to those lines. It is most likely, however, to be one of the minerals printed in bold or plain face whose vertical range line was intersected by the horizontal line in the middle third. A comparison of the other physical properties of the unknown with those of the suspected minerals will generally serve to complete the identification.

[6] *Op. cit.*, pp. 361–365.