

Classifying the Earth Science Collection

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The Earth Science Division of the Science Department of Ball State Teachers College has been collecting earth science materials for some years. A few years ago an additional collection was purchased with funds from the Ball Foundation. It was purchased from Mr. William H. Schrawder, a former teacher in the Schenley High School in Pittsburgh. He had spent his summers for many years travelling and collecting. During the winter, his recreation was cutting, shaping, polishing and classifying. The total was purchased in two groups and stored until this summer for lack of space. The completion of the new Practical Arts Building this summer relieved the space on third floor of the Science Hall for expansion, and we are in the process of arranging the total collection in museum cases, and for use in teaching.

The Schrawder collection included, besides earth science materials, specimens from the fields of archeology, conchology and many manufacturing processes. There were about 1,090 specimens which we added to the original collection belonging to the college, making a total of about twelve hundred specimens.

Of the new collection 69 were listed as museum specimens, 136 as teaching materials. There were 230 minerals, 107 igneous rocks, 95 metamorphic rocks, and 90 sedimentary rocks. In the fossil group, 66 were plant fossils, 105—invertebrate fossils, and 63 vertebrate fossils.

The first step was the separation of the earth science material from the conchology specimens and from those representing manufacturing processes. The latter two groups, consisting mostly of shells and alloys, were turned over to the divisions of biology and chemistry, respectively.

The earth science specimens were divided into four large groups, the first containing museum and teaching materials, the second, the minerals, the third, the rocks, and the fourth, the fossils. The last named was further subdivided into plant, invertebrate animal, and vertebrate animal **fossils**.

After consultation with geological authorities at Washington University (2), Northwestern University (3), Harvard (4), and the Field Museum (5), it developed that there was no one accepted method of classifying a geological collection and the lack of such a system allowed the authors to devise one for the classification.

Since it was thought best to identify each specimen by a number, an effort was made to express some significance in the number. Accordingly, six divisions were designated by numbers; those from one thousand to 1999 were assigned to the museum specimens and teaching materials, the two thousands to the minerals, the three thousands to the rocks, the four thousands to the plant fossils, the five and six thousands respectively to the invertebrate and the vertebrate fossils.

The teaching materials were further subdivided into sections with the geological agents as the basis of subdivision. Thus the ten hundreds were reserved for the museum specimens and the teaching materials

showing the effects of weathering, the eleven hundreds for the work of the atmosphere, the twelve hundreds, the effects of running water, the thirteen hundreds, the work of the atmosphere, and the fourteen hundreds, the specimens from lakes and swamps. Glaciation, marine action, structure, diastrophism, vulcanism and miscellaneous specimens rounded out the ten division. Arbitrarily selected numbers within the division indicated the various individual specimens.

The second group, the minerals, presented more of a problem. The Dana system, long honored basis for the numbering of minerals, was being discarded for a new series being worked out by the Harvard revisers of the textbook. The new system had not yet appeared when the work of classification was started, so the authors, on the advice of Professor Palache (4), simply took the chemical groups of minerals as listed in Hurlbut's (6) text, reduced them to ten groups by combining the carbonate group with the borates and nitrates, and arbitrarily assigned numbers within the various groups to include all the minerals listed by Hurlbut. Thus calcite is given number 2501; the number 2000 indicates that it is a mineral, the 500 in the figure refers to the carbonate group, and the one is the number assigned to calcite. Aragonite is numbered 2551 while dolomite is 2511.

Silica is included with the silicates and an attempt, not entirely successful, was made to follow Berman's classification of this group (7).

The rocks were subdivided into three instead of ten classes; the usual subdivisions of igneous, sedimentary, and metamorphic groups were used. These were numbered, respectively, thirty-one hundred, thirty-two hundred, and thirty-three hundred. Numbers within these ranges were assigned arbitrarily to the individual rocks; thus granite is 3101 followed by twenty-one varieties of igneous rocks. In the sedimentaries, sandstone is 3214 and in the metamorphic series, marble is numbered 3368.

The fossils are also grouped into three major divisions. Plant fossils were assigned the four thousands, invertebrate animal fossils, the five thousands, and vertebrate animal fossils, the six thousands. Each of these groups was further subdivided on the basis of the phylum to which the fossilized animal or plant belonged. Thus a fossil elephant tooth was numbered 6751.

Varieties are shown by decimals. Thus quartz, classified with the silicates, is represented by the number 2901, while the varieties of quartz, rock crystal, amethyst, rose quartz, and smoky quartz, are shown by the numbers 2901.1, 2901.2, 2901.3 and 2901.4, respectively.

Duplicates of an individual are shown by a dash following the specimen number. A third duplicate of native copper would be given the native copper number 2004 followed by a hyphen and the number 3, thus, 2004-3.

This ends the system as far as the classification of an earth science collection is concerned but the plan may be expanded to include archeology, historical material or any other items at the will of the curator by assigning additional numbers to the list. It is believed that the system here proposed is perhaps more flexible than any now in use, inasmuch as it provides for additions to the collection, and assists in sorting, storage and exhibition or use of the material in an earth science collection.

Literature Cited

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4. Personal communication from Charles Palache, Harvard University.
5. Personal communication from Arthur L. Howland, quoted by John R. Ball.
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