

## NOTES AND NEWS

### THE TREND OF MINERALOGICAL RESEARCH

W. A. TARR, *University of Missouri, Columbia, Missouri.*

The presidential address of Professor Winchell to the Mineralogical Society of America on December, 1932, was entitled "The New Mineralogy."<sup>1</sup> He contrasted the character of mineralogical studies in 1932 with those of three decades earlier and found that interest had shifted from surfaces and average composition of minerals to their internal structure and variations of composition.

The writer has been interested in the trend of research dealing primarily with the *origin* of minerals, and has classified the contents of *The American Mineralogist* and *The Mineralogical Magazine* for the last two decades, under various subject headings, such as crystallography, physical properties, x-ray and crystal structure, origin, chemical mineralogy, descriptive mineralogy, petrology, and new minerals; 10 headings in all. It is recognized that these subdivisions are not the only ones that might have been chosen, but all represent common subjects and cover the material fairly well. A really difficult task was the attempt to evaluate papers that included a wide range of material, an attempt which I am sure both Dr. Hunt and Dr. Spencer, editors respectively of the two magazines, would agree verged upon hopelessness. When such decisions were required, the article was placed in that group with which the major part of its subject matter was concerned. Only in the matter of "origin" was a *part* of an article culled out and classified differently from the main subject with which the article dealt. This was done in order to determine with some degree of accuracy the exact amount of space devoted to this significant subject.

As the study was made in order to note the trends of research, some preliminary graphs showing the distribution by volumes or years were made, but as they revealed nothing of importance in this connection, their use was abandoned. The percentages (in terms of pages) of each subject alone were used. As *The Mineralogical Magazine* incorporated its "reviews and abstracts" in a separate volume after 1920, these subjects were omitted in the study for both journals. Papers on the subject of "petrology" were first accepted by the American Mineralogical Society for their journal in 1932, whereas the British Mineralogical Society had always accepted them, hence the greater percentage of such subject matter in the magazine of the latter.

Not all the articles dealing with mineralogy necessarily find their way

<sup>1</sup> Winchell, A. N., The new mineralogy: *Am. Mineral.*, vol. 18, pp. 81-90, 1933.

into the columns of these two journals; for example, many articles in magazines dealing with ore deposits contain much excellent mineralogical material, as the study of ore deposits is merely applied mineralogy, and *The American Journal of Science* has much excellent material on the origin of minerals. However, the material in the mineralogical journals can certainly be taken as indicating the type of studies being carried on by those interested in mineralogy and affiliated subjects.

In the graph showing the percentage amounts for each subject the values for both journals were placed together in order to show how surprisingly similar is the work being done in each country. That both

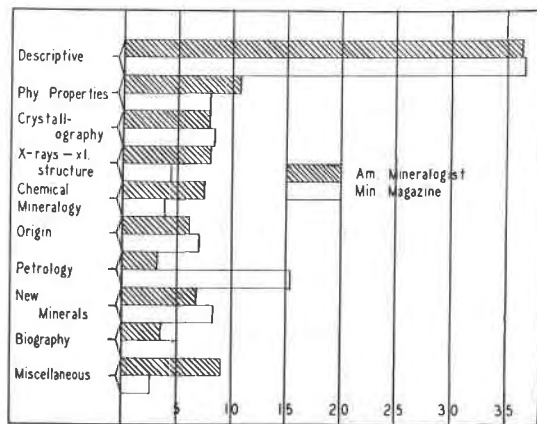


FIG. 1. The distribution of the contents of *The American Mineralogist* and *The Mineralogical Magazine* in percentages of pages of each subject from 1915 to 1935.

journals show almost identical amounts (over 36 per cent) of descriptive material is surprising. The other subjects (save "origin," to be discussed below) need no comment.

The writer was surprised at the similarity in the percentage amounts of the material dealing with origin and that devoted to *x*-ray studies, crystallography, chemical mineralogy, and physical properties. Yet in view of the great importance of origin and its bearing upon the interpretation of the other factors about a mineral, this percentage is too small. Discussions of "origin" occur more frequently in *The American Mineralogist* than in *The Mineralogical Magazine*, though many of such American contributions consist of only a short paragraph in a long and informative paper, whereas the British discussions are usually full

and important articles on the subject. The frequent references to origin in *The American Mineralogist* are worth while, as they keep the subject before us.

The discussions of the origin of minerals varied widely in their manner of approach. Only a very few were actually determinative, *i.e.*, the mode of origin as established experimentally. Relatively little mineralogical research appears to be in progress in this very vital and essential field of determinative work largely because, in this country, of a lack of proper technical training on the part of the workers and a paucity of equipment. Physical plants for thorough experimental work in mineralogy are so lacking in the United States that the Geophysical Laboratory in Washington is the heaven of the ardent mineralogical research student. The majority of discussions of origin in the magazines were deductive, the origin being deduced from the background of facts exhibited by the occurrence of the mineral or minerals. This method calls not only for a very thorough knowledge of the science of mineralogy but also of the closely related sciences, chemistry and physics. Were the experimental method united with the deductive, the contribution so produced would have a maximum of value. Some of the discussions of origin are interpretations based upon the conditions of occurrence, a minimum of deduction being brought into the picture. Lastly, there are "opinions" of origin, about which the least said the better, although the majority of these doubtless represent "honest" opinions. And, lest anyone ascribe to these remarks a criticism of the editorial policy of the journals, allow me to say that nothing could be further from my mind, and I venture to say that few of us realize how much the tact of these editors enables them to keep "opinions" from their journals.

In conclusion, I am venturesome enough to say that experimental research on the origin of minerals is still largely an unexplored field. We need men with a technical training in chemistry and a background of experience in mineralogy. Such men must be forthcoming; and yet the well trained man is useless without the physical equipment with which to carry on the work. How few universities have departments of mineralogy with as fully equipped plants for research as have their departments of physics and chemistry. And why should this be so? Surely, an understanding of the components of the earth is as badly needed as that of the neutron and the cosmic ray—and yet the difference in the money spent on research in each! We in mineralogy are doing much, deductively, but we need to be doing more than 1/14 of our mineralogical research work on the origin of minerals.