Dynamical geology represents the application of physics and chemistry in the problems of the earth's evolution. It is, therefore, highly appropriate that geological research should be used among our instructors and graduate students, an integral part of the 'Institute's work. Every year the principles of chemistry and physics are being enlarged or restated. Either of these sciences is in a state of flux. A great number of geological problems are being attacked with the new methods provided by physical chemistry. So rapid is the advance in all three of the basic sciences that revision of the principles of physical geology is a constant necessity. The geologist has an obvious advantage who has among his colleagues physicists and chemists, who will draw his attention to recent discoveries, or to improved statement of fundamental principles, and who will advise him where only the expert is a safe guide. Such is the opportunity of a geologist at a well equipped technical institution, or at an equally well equipped university. Research on the principles of physical geology is therefore being enlarged or restated even in the government surveys.

Every advance made in general or dynamical geology is a direct or indirect gain to economic geology and, therefore, to the thoroughly trained, practical engineer. While the ordinary mining geologist has the research spirit, routine and skill adherent to test booklets, handbooks, or lecture instruction are not for him. The geologist must be a man of money may be interested in his report, he must go deeper into interpretation of local facts than anyone has ever done before.

No two mining camps are alike, no two problems in finding or following an ore-body are alike; each case requires a new and special application of geological principles, and these are tested with each solution. A large part of the enormous mining money could be saved if managers and "experts" were trained in the atmosphere and methods of geological investigation. The teaching of Ore-Dressing at the Institute is done by lectures illustrated by laboratory work, which is limited to come as nearly with the topic of lecture as possible.

Ore-Dressing Laboratory. The laboratory work is laid out for giving the students as much practical knowledge of ore-dressing as possible in the time allowed, and to furnish the tools and materials and guidance for investigation. The chief features of the work are: (1) Concentration of a lead ore. (2) A run on a gold ore in a California quartz mill. Each of these illustrates the method of grouping a set of figures and the non-conductors; and the flotation method; these are the magnet, which cannot be separated by the above processes, and the magnetic minerals from the waste, and then the separation and classification, followed by the jig, tables and vanners, to separate the good from the bad. While the above procedures use water and specific gravity for separating the minerals, there are a number of other processes which help by separating the minerals which are of the same specific gravity and therefore cannot be separated by the above method; these are the magnet, which separates the magnetic minerals from the non-magnetic minerals; the static electricity machine, which separates the mineral conductors of electricity from the non-conductors; and the flotation methods, which separate the minerals that are held up by the surface tension of water from those minerals that are soluble.

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