AN ELEMENTARY TREATISE ON THEORETICAL MECHANICS. By Alexander Ziwet. Part III: Kinetics. New York and London: Macmillan & Company. 1894. Pp. 224. Price $2.25.

We have before now reviewed Professor Ziwet's works, but the present one is so very mathematical that but little can be said of it further than that "about one-half is devoted to the kinetics of a particle, the remainder being given to the kinetics of a rigid body and a brief description of the fundamental principles of the kinetics of a system." This is the statement of its scope with which the preface starts out. Kinetics is a science of growing importance. It is hardly too much to say that one who has thoroughly mastered the subject is on the road to obtain a knowledge of all physical science. Works like the present, giving so much in so short a space, are particularly to be welcomed.

THE ARCHITECT'S DIRECTORY FOR 1894. Containing a list of the architects of the United States and Canada, classified by States and towns, with the architectural associations to which they belong indicated against each name. Together with a classified index of prominent dealers and manufacturers of building materials and appliances. Published annually. New York and Chicago: William T. Comstock. Pp. 119. Price $1.

THE PRACTICAL APPLICATION OF DYNAMO ELECTRIC MACHINERY. By Carl K. MacFadden and William D. Ray. Second edition (revised). Chicago: Date & Ruggles. 1894. Pp. 167. Price $1.

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Notes & Queries

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Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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Minerals sent for examination should be distinctly marked or labeled.

(6325) F. J. M. asks: What causes the noise in snapping a whip? A. The sudden straightening of the end of the lash or snapper. This involves a velocity of such degree as to start sound waves in the air.

(6326) W. B. H. says: Will you tell me how to etch the designs seen on knives, razors, saws and and various tools? The design looks as if it were printed on and then etched with acids? A. For etching brands and marks on polished steel surfaces, such as saws, knife blades, and tools, where there are many pieces to be done alike, procure a rubber stamp with the required design made so that the letters and figure that are to be bitten by the acid shall be depressed in the stamp. Have a plain border around the design, large enough to allow a little border of common putty to be laid around the edge of the stamped design to receive the acid. For ink, use resin, lard oil, turpentine and lampblack. To ¼ pound of resin put 1 teaspoonful lard oil; melt, and stir in a tablespoonful of lampblack; thoroughly mix and add enough turpentine to make it of the consistency of printer's ink when cold. Use this on the stamp in the same manner as when stamping with ink. When the plate is stamped, place a little border of common putty around and on the edge of the stamped ground. Then pour within the border enough acid mixture to cover the figure, and let it stand a few moments, according to the depth required, then pour the acid off. Rinse the surface with clean water; take off the putty border and clean off the ink with turpentine. Use care not to spill the acid over the polished part of the article. For the acid, 1 part nitric acid, 1 part hydrochloric acid, to 10 parts water by measure. If the effervescence seems too active, add more water.

(6327) C. C. says: Please give me through the Notes and Query column of the SCIENTIFIC AMERICAN the name and a description of the inclosed specimen. A. Answer by Professor C. V. Riley, Honorary Curator of the United States National Museum.—The Three-lined Leaf Bug.—The black, coffin-shaped insect with sundry dull reddish lines, accompanying the letter from Mr. Carl Carlson, Hanley Falls, Yellow Medicine Co., Minn., of which he desires name and information is Leptocoris trivittatus, Say. This is a true bug belonging to the sub-order Heteroptera and quite common in the West and Northwest, where it is reported, especially from Utah. An old correspondent, Mr. A. Siler, of Utah, sent it many years ago as doing injury to apples, presumably by puncturing the young fruit, and causing it to become gnarled and withered. But the species attacks many other plants and is found in all stages of development, especially on green ash and box elder. Professor E. A. Popenoe, in the Industrialist for March 19, 1881, records it as being abundant at Manhattan, Kansas, in greenhouses, and as pumping the sap from various succulent plants, such as geraniums, ageratums, lilies, cactuses, etc. It is in the habit of congregating together and may be destroyed with the ordinary kerosene emulsion.

(6328) F. B. asks: 1. I have a laminated core (laminations made of small soft iron wire and placed in iron pipe) 1¾ inch in diameter by 5 inches long. What size wire should I use and how many layers should I put on to get the best advantage, most magnetism, when using two Gonda cells? A. No rule can be given for your case. The larger the gauge of the wire, the more of it can be used. The Gonda cells will run down so rapidly that no useful calculation can be based upon them. Use No. 20 wire and try three layers closely wound. 2. Do the laws for winding solid cores apply to winding laminated cores? A. Yes. 3. Having given a a core and the current, would you apply the same rules to winding for a magnet as you would to winding for a spark? A. Yes. 4. In a three-pole magnet is the amount of magnetism in the middle pole equal to the sum of the amounts in the two opposite poles? I wound a core with two layers of wire in one direction and the other two layers immediately upon this, but in the opposite direction. I think the magnet was very weak. Did not the last two layers have a neutralizing effect upon the first two? A. Yes; there must be equality. In the winding you describe one winding evidently neutralized the other. 5. Do you know of any one in the United States who manufactures Bell telephone receivers and transmitters? A. Consult our advertising columns.

(6329) F. G. C. asks how to tell the points of the compass by the aid of a watch and the position of the sun. A. The 32 points of the compass to correspond with the 24 hours of the day require ¾ of an hour to each point; and as the sun is approximately east and west at 6 o'clock A. M. and P. M. and due south at 12 M., at 6:45 its azimuth will be E. by S., at 7:30 E.S.E., at 8:15 S.E. by E., at 9 S.E., at 9:45 S.E. by E., at 10:30 S.S.E., at 11:15 S. by E., at 12 N.S., and so on for the afternoon quadrant.

(6330) Y. M. C. A., Savannah, says: We have a building for a gymnasium, covered with tin, the inside is open up to the rafters, the sheathing being nailed on the rafters on the outside and then tinned. We want to use this hall for lectures, musicales, etc., but during a rain the noise is so great that it kills all else. What is the least expensive way of deadening the sound? A. Cheapness is a stumbling block in work of this kind. Lathing and plastering is the proper thing to do. Common paper boards or straw boards, cut and fitted between the rafters and nailed to the sheathing with large tacks, will materially modify the intensity of the sound of the rain. If this is not sufficient, a match board ceiling can be made on the under side of the rafters with a building paper lining, which will be cheaper than plastering and may be found very satisfactory.

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AND EACH BEARING THAT DATE.

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