Mwapwa on August 15th last, and expected to commence the journey across Ugogo on September 3rd. Mr. Stanley left Sierra Leone on September 3rd, for Banana (Banza?) on the Congo.—According to the Academy King Mtsesa has recently showed himself less friendly to the Missionaries of the English Church Mission, accusing them of complicity with the Egyptians. The Missionaries have been reinforced by the arrival of three more by way of the Nile via Magungo and the Albert Nyanza, and of two others by the lake from Kagei at the southern extremity.—Menelek, king of Shoa, has written to the Geographical Society of Paris urging the sending out of a French Mission, promising to employ all his power on their behalf. The Sultan of Somali land, on the western coast of the Gulf of Aden, has also invited foreigners to visit his dominions.—Gessi Pacha has succeeded in capturing the last refuge of the slave traders in the Soudan. Over 4000 have been expelled from the country and twenty-five slave caravans of between three and four hundred slaves each have been captured.

—Dr. Wilhelm Junker has returned recently to Europe after three years spent in explorations on the upper Nile. Dr. Schweinfurth writes to the Athenæum (August 23, 1879) giving an account of his travels, illustrated by a small map of the Welle basin. Dr. Junker has brought back with him and given to the Russian Academy of Sciences the largest and best ethnological collection yet obtained in these regions. His careful surveys throw a flood of light upon the water shed separating the Nile from the Welle, and present a basis for mapping an area of four square degrees. He has also made a survey of the lower Sobat. The results of his investigations in the district lying between the Welle river and the Bahrel Ghazel are given in much detail, and the corrections necessary in Schweinfurth’s own itinerary indicated. Dr. Junker reached his furthest point in lat. 20° 30' N., where at a distance of twenty miles he saw a range of high mountains identified by him as the Bluemountains of Baker to the west of the Albert Nyanza.

MICROSCOPY.¹

THIN GLASS SLIDE TROUGHS.—These are made of glass slips, three inches by one and one-third inches, to which are cemented slips of thin glass two inches by one inch, out of which a semicircle of three-quarters of an inch radius has been cut, and then covered with another thin glass two inches by one inch. It is well to have an assortment of these, of different thicknesses or depths, and for those of greater depths it is more convenient to make the distance-plates of vulcanite instead of glass. These troughs should always be washed out directly after use.

PREPARATIONS OF CRYSTALS FOR THE POLARISCOPE.—After preparing crystals, dry, in Canada balsam, and in castor oil, it

¹ This department is edited by Dr. R. H. Ward, Troy, N. Y.
occurred to me to attempt to preserve them in their own mother liquor. To do this paint on a slide a thin ring of gold size, whose entire diameter shall equal that of the cover glass. To make the edges of the ring smooth and true hold the flat edge of a small chisel against them at the points indicated by the straight lines in the figure, whirling the turn-table in the direction indicated by the arrow. As soon as the ring is finished heat it over the flame of a lamp until it becomes brown. Put into a test tube a little salycine, tartaric acid, prussiate of potash, or other substance adapted for examination with the polariscope, add water and apply heat until the solution is of such strength that crystals will form in it only when quite cold. Coat the ring, already hardened, with a little fresh size, and likewise the edge of the cover glass. Put the slide and cover glass thus prepared, on the hot plate for a few minutes and then pour a few drops of the boiling solution from the test tube into the cell and apply the cover glass, immediately pressing it down gently with a dry cloth which will absorb the superfluous liquid. Touch the edge of the cover glass with gold size and then transfer to the turn-table and finish. If the above directions have been followed correctly the cell will contain a clear liquid which begins to deposit crystals as it cools. Transfer the slide to the stage of the microscope soon enough to watch this process. Without the aid of the polariscope it is of interest, but with that accessory the spectacle presented is exceedingly beautiful.

After standing for some time however, the crystals appear to lose their sharpness and perfection of form. They may be restored by a fresh application of heat sufficient to cause them to dissolve and enter upon new forms of combination. As a means of observing the process of crystallization this method appears to be the best, and many of the results as respects brilliancy of color and perfection of outline are unsurpassed. I would recommend however, that those who have not tried it, should make a moderately strong solution of salycine or tartaric acid in boiling water and pour it over a warmed slide, draining off the greater part immediately. When crystallization ceases put a drop of Canada balsam in the center of the slide and apply a cover glass. Examine, and if found satisfactory, harden the balsam and finish in the usual way. Having once learned these processes, there is no limit to the range of experiments that may be made. For instance, a strong solution of santonine in chloroform gives very fine crystals which are quite permanent and brilliant when mounted dry. It should be noted that the quantity and strength of the solution employed will modify the results obtained, also agitation of the fluid whilst evaporating will in some instances introduce crystals of an entirely different form from those obtained when it is permitted to remain undisturbed.—M. A. Verder.
Separating Foraminifera from sand.—If you throw dried sponge sand into water, slowly, all the foraminifers will sink, and sand will float on the water. A slide dipped under the floating film of grains will bring up only sand. You can safely skim off and throw away all that does not sink with a little stirring. Then the sunken part should be dipped out, about a dessert-spoonful at a time, into a small saucer, and water enough to just fairly cover them put in, and all floating grains stirred down. Then by a circling movement of the hand the foraminifers will be got to the top, and by gradually tipping the saucer and slowing up the movement they can be worked to one edge of the little pile of sand, and thence carefully dipped up with a rubber bulb pipette. In this way they are got almost pure. Only a little sand must be washed at a time, or not all the foraminifers will be got out, and very little water must be used or sand will get mixed with them. Much water moves the light sand, but a shallow wave seems not to stir it, but yet rolls the shells along—C. M. Voice.

Naturalists’ Directory.—The Naturalists’ Directory for 1879, recently published by S. E. Cassino, at Salem, Mass., contains by far the best register of American microscopists yet published. It will be found especially useful to the microscopists who desire to arrange for exchanges in different parts of the country.

Scientific News.

—Recent arrivals at Zoological Garden, of Philadelphia: 1 sandhill crane (Grus americana); 2 cheetahs (Felis jubata) ♂ ♀ Africa; 1 sun bear (Helarctos euryspilus) Borneo; 1 Chacma baboon (Cynocephalus porcarius); 2 electrical eels (Gymnotus electricus) and 2 red-crested cardinals (Paroaria cucullata) South America; 3 mule deer (Cervus macrotis) and 1 fallow deer (Dama vulgaris) Europe, bred in the garden; 7 mandarin ducks (Aix galericulata), China; 1 rose-crested cockatoo (Cacatua moluccensis); 78 inches, of the following species: Anadina fasciata, A. bicolor, Munia undulata, M. maja, M. acuticauda, M. malacca, Estrela amandava and E. melpoda; 2 American elk (Cervus canadensis) and 2 Virginia deer (Cervus virginianus), bred in the garden; 1 Marabou stork (Leptoptilus crumeniferus), West Africa; 2 black-tailed parrakeets (Polytelis melanurus), Australia; 1 grand galago (Galago crassicaudata), East Africa; 1 Ducorps cockatoo (Cacatua ducorps), Solomon Islands; 1 lesser sulphur-crested cockatoo (Cacatua sulphurea), Moluccas; 1 white goshawk (Astur nova-hollandiae, Australia; 2 hyacinthine porphyrios (Porphyrio hyacinthinus) Europe; 2 white storks (Ciconia alba), Germany; 1 armadillo (Dasypus novem-cinctus), Texas; 4 collared peccaries (Dioctyles torquatus); 5 woodchucks (Arctomys monax) and 27 com-