mately) emits middle C. As the temperature at the junction is increased the pitch is raised; but it has not been determined whether this is due to the temperature alone or to the gradual shrinking of the bulb, as the temperatures required are above that at which pyrex softens. To avoid this difficulty, it is planned to continue the investigation using tubes of quartz.

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A SIMPLE MICROSCOPE EYEPIECE POINTER

THE use of an eyepiece pointer to augment the value of a demonstration under the microscope is usually appreciated by both student and instructor in the laboratory. The customary procedure of gluing a short hair to the rim of the ocular diaphragm is simple and effective. When, however, the eyepiece is in demand both with and without a pointer, the necessity of having to adjust the hair each time is highly inconvenient.

To meet the need for a pointer that could be readily inserted and removed from the ocular, the writer has devised the accessory here described.

A round 18-mm coverglass, free from imperfections, is selected and cleaned with acid alcohol. This forms a base upon which a pointer may be mounted. The pointer itself is drawn from a thin glass rod to a fiber-like thickness. With a little care and practice the glass can be drawn to a diameter appreciably less than that of even a fine human hair.

The tapered end of the pointer is then placed on the base, a drop of Canada balsam added followed by a second coverglass, likewise perfectly clean. By means of the protruding end of the pointer its tip may be centered and its axis adjusted parallel to the radius of the two coverglasses. In this way the fine rod is sealed, free from disturbance between the two coverglasses. After the protruding end of the pointer is snapped off the finished product results.

If actually embedded in the balsam the glass pointer appears highly refractory when viewed through the microscope. If this is objectionable, the pointer can be held in place by applying the cement only to the edges of the coverglasses. When so mounted it is seen as a black line.

A dozen or so of these pointers can be made and mounted in half an hour and they may then be kept permanently on hand for instant use when needed.

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SPECIAL ARTICLES

OBSERVATIONS CONCERNING THE CAUSATIVE AGENT OF A CHICKEN TUMOR[1]

IN early publications on the chicken tumor group, some of the properties of the filterable agents causing these neoplasms were described. Recently additional observations have been reported from this laboratory which may be summarized as follows: The agent of Chicken Tumor I, a spindle-cell sarcoma, is selectively adsorbed and fixed by certain mesodermal tissues from susceptible animals, but not by similar tissues from non-susceptible animals. The plotted curve of the amount of ultraviolet light of selected wave lengths required to inactivate the tumor agent shows a significant qualitative and quantitative variation from the curves for bacteria, typical viruses and bacteriophage. The tumor producing activity of the tumor filtrates can be precipitated out with a protein fraction and somewhat purified.

Certain extensions of the work will now be recorded.

Steps in Purification of the Tumor Agent

Precipitation. As already reported, the agent active in a tumor filtrate can be precipitated out by electrodialysis or by increasing the hydrogen-ion concentration with acid or buffer. The pH at which the precipitate comes down is between 4.4 and 4.8. It carries all of the agent with it and can be dissolved in alkali and reprecipitated repeatedly without destruction of the agent.

The average amount of nitrogen in the precipitate is about 12 per cent. and varies little with the method of preparation of the extract. The phosphorus ranges from 0.16 per cent. to 0.69 per cent., being lower when the extract is prepared with water and higher when an alkali or Ringer's solution extract is used. Hydrolysis of the precipitate shows the constant presence of a considerable amount of reducing substance in all the active precipitates tested. The Feulgen reaction is positive, becoming more intense with each reprecipitation of the material. With the Mallory connective tissue stain the first precipitates give generally a maroon red, tending more to yellow red with the specimens showing a stronger Feulgen reaction.

Purification by Adsorption. Adsorption on colloidal aluminum hydroxide, a method already employed by other investigators, was utilized in attempts to purify the agent. The results were disappointing in that so little of the agent could be released after adsorption that inoculation produced at best tumors much smaller and less vigorous in their growth

[1] From the laboratories of the Rockefeller Institute for Medical Research.