From a pupa formed on July 4 an adult emerged on July 20.

Of the early stages 160 eggs and 264 caterpillars representing all the stages have been collected, and a detailed report upon them is in course of preparation.

In their monograph on the North American Hesperioidea Lindsey, Bell and Williams say that this species resembles *Thorybes* closely in most of its characters, and this is certainly true of the early stages.

An individual that emerged from the pupa on July 20 represents an interesting and well-marked variety. It is exceedingly dark in color, and the usual gold band across the fore wings is replaced by a series of four spots, the first, adjoining the costal border, small, the second, crossing the cell, about half as broad as the usual band in the same place and much lighter than the first, the third, very small and bright golden, in the middle of the interspace between veins M_2 and M_1, and the fourth, nearly as large as the first, in the interspace below near its outer end. This may be known as var. *leilae*.

AUSTIN H. CLARK

U. S. NATIONAL MUSEUM

HOW SOME BIRDS SATISFY THIRST

To the list of birds mentioned by Mr. Allard[1] as eating snow in winter may be added the evening grosbeak, the white-breasted nuthatch and the red-breasted nuthatch. My friend, Liguori Gormley, tells me he has several times noticed these birds eating snow.

Winter birds, and indeed mammals also, seem to satisfy thirst in this way even when water is available. In this part of the Ottawa valley resident winter birds usually number about fifteen species, and excluding the aquatics—muskrat, mink and beaver—there are about eight kinds of mammals active in winter. Although the snow lies deep for four months and the ice is often more than two feet thick, there is always open water to be found at rapids and springs. Having in mind the concourse of animals and birds that gather to drink at water-holes in Africa, I have often been struck by the fact that in many years' observation, I have never seen in my district the track of a bird or of a terrestrial mammal coming to open water in winter.

CHARLES MACNAMARA

ARNPRIOR, ONTARIO, CANADA

QUOTATIONS

PRESIDENT ROOSEVELT'S ADDRESS AT THE MAYO CLINIC

I HOPE that the people of Rochester will not feel limited in their pride of possession when the nation which I have the honor to represent claims the right to call Dr. Will and Dr. Charles by the good word "neighbor." You are beloved at home and abroad, and a world deeply in your debt gives you inadequate return in external honors and distinctions. But your true distinction is in the simple fact that you have put men's sense of brotherhood and interdependence into a setting and have given it a new meaning.

For fifty years you have given tireless, skillful and unselfish service here in this state and city. These fifty years, the span of your medical practice, have covered probably the most remarkable period in the history of science. You have seen practically all of modern medicine and surgery come into being. The rise of research, dating back to the days when you began your practice, has revolutionized the diagnosis, prevention and treatment of disease.

The development of the branches of this science has revolutionized not only the science of medicine but the entire field of effort that we sometimes call public welfare. You have seen surgical technique become one of the finest of all the arts of man. You have seen the development of the science of public health, which has brought the gospel of health to the school and clinic. You have seen the growth of hospitals, the creation of foundations for medical research and a revolution in the teaching of medicine. You have seen isolated clinics come to be part of great universities, an association resulting in the enrichment of both.

But despite the progress that you have seen and that you have helped to accomplish, the restless spirit of science prompts you to see new visions of achievement. As you have pointed out so often in your predictions of what humanity may expect from medical science in the future, progress is only at its beginning. In the further development of the curative art, in the discovery of new means for the prevention of disease, in the creation of methods by which all of the people may be made aware of the knowledge of hygiene and public health developed in the laboratory clinic, your vision offers promise of a greater nation and a happier people.

You have helped to give to the medical profession a unique place in the community and the nation. By reason of his special opportunities, the physician has the occasion to perform a service in his community far beyond the bounds of his own professional duty. His infinitely complex relationships with the people of the community enable him to lead them in standards of

[1] SCIENCE, 80: 2066, 116, August 3, 1934.

ethical right which may profoundly affect human conduct in general.

For this reason the science of medicine comes to concern itself with many things besides the healing of the sick. It has been broadly interpreted as a major factor in the science of human welfare. The problems of disease and the circumstances related to it are to the science of modern medicine only the sequel of a long train of social cause and effect. Medicine has taught us how important it is to look beyond the result to the cause, not only of human sickness, but of those social disorders out of which individual difficulties necessarily arise.

Those of us who are concerned with the problems of government and of economics are under special obligation to modern medicine in two very important respects. In the first place, it has taught us that, with patience and application and skill and courage, it is possible for human beings to control and improve conditions under which they live. It has taught us how science may be made the servant of a richer, more complete common life. And it has taught us more than that, because from it we have learned lessons in the ethics of human relationship—how devotion to the public good, unselfish service, never-ending consideration of human needs are in themselves conquering forces.

Democracy looks to the day when these virtues will be required and expected of those who serve the public officially and unofficially. Modern medicine has set an exalted example. It has shown the way for us all.

You whom we honor to-day rendered the highest form of patriotic service during the battles of the World War, but, even more than that, you deserve the nation's thanks for the national service that you have rendered throughout your lives.—*The Associated Press.*

SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN EASILY CONSTRUCTED ELECTRO-MICROCAUTER FOR USE IN CELLULAR BIOLOGY

THE need recently arose in our laboratory for a microcauter of simple construction by means of which any desired degree of heat could be applied to a very small area of the Drosophila egg. On looking up the electromicrocauters which have been described and used by Schouten and by Péterfi,[1] we found that these instruments not only require considerable technical skill for their construction, but in addition they possess several features on account of which they do not adapt themselves readily to our plan of experimental procedure. In both of the instruments described, the heat is carried to an operating tip, usually of platinum, by conduction from a heating element, and there is necessarily an initial latent period for this conduction. The heating element, whether it is encased in an insulating sheath or not, introduces factors which are difficult to control. If insulated, the heat retained within the sheath tends to accumulate, and rapid consecutive operations can not be carried on under identical conditions. If no insulation is used, direct radiation from the heating element exposes a wide area of the experimental material to possible injury.

To eliminate these factors, the electromicrocauter to be described was designed. We have found that it meets our purpose admirably, and we feel that it should be of real value in other types of micro-operative work in cellular biology. It offers, in addition to the ease with which it may be constructed, a new detail of refinement, in that the point is heated completely to its tip by the electric current. Thus it is possible to localize any desired degree of heat in a very small area without the additive effect of heat radiation from a heating element.

The construction of the microcauter is evident from the accompanying figure (Fig. 1). The outer rubber

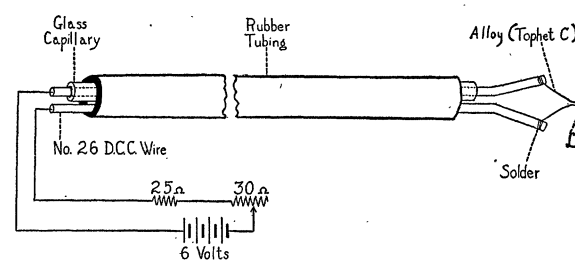

FIG. 1. Electromicrocauter with operating loop (L), made of radio filament-wire 20 μ in diameter.

tubing is about ⅛″ in diameter—the kind known to radio constructors as spaghetti tubing. Two No. 26 DCC copper wires, one of which is enclosed in a glass capillary, are run through this and fastened in place by a drop of ambroid cement at either end. The terminal point is made of an alloy known as "Tophet C," which is manufactured for radio filaments by the Gilby Wire Company, of Newark, New Jersey. A piece of this filament-wire (diam. = 20 μ) about half an inch long is soldered between the two copper wires and bent under a binocular dissecting microscope to a very narrow loop (± 30 μ). The piece used in our instrument has a resistance of 45

[1] T. Péterfi, *Abderhalden's Handbuch*, Abt. 5, Theil 2, Heft 5.