Stanford University, fishes; Josephine Tilden, University of Minnesota, algae; Elda Walker, University of Nebraska, plant morphology; R. B. Wylie, University of Iowa, plant morphology; Charles Zeleny, University of Illinois, embryology.

In 1928 the total number of students was 132, of which forty-two were graduate students doing class work and twenty were graduate students doing research. Besides, there were six teachers doing research.

Expenses are light, but work is strenuous. There are no tourists, even for a single night. Play is encouraged, so that at the end of nine busy weeks one feels that he has had a vacation while he was teaching or doing research.

CHARLES J. CHAMBERLAIN
UNIVERSITY OF CHICAGO

THE AMERICAN MEDICAL ASSOCIATION OF VIENNA

THERE exists in Vienna the American Medical Association of Vienna, which is a well-developed organization founded for the purpose of facilitating post-graduate medical work for English-speaking physicians. All the English medical courses given under the auspices of the University of Vienna are administered through this organization.

Many Americans come to Vienna for post-graduate medical work and apparently profit by so doing. Many others write to professors and business organizations asking for information, indicating a lack of knowledge of our organization.

We have an annual membership of nearly 1,000 new doctors, who come from various parts of the world, and who obtain their work through our organization. It is thoroughly well organized, with four secretaries to orient new members and assist them in obtaining medical courses, housing, money matters, shopping, sightseeing, etc.

For further information, address The American Medical Association of Vienna, Vienna VIII. Alserstrasse 9, Austria.

RALPH A. REYNOLDS

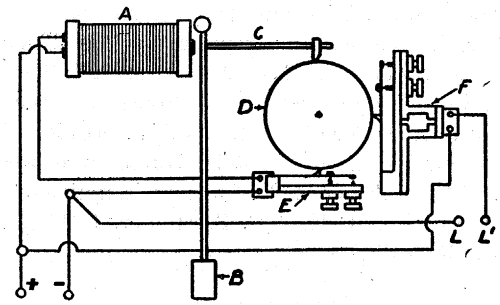
SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN IMPROVED CHRONOGRAPH

A VAST number of instructors in laboratories of experimental physiology have had difficulties with time clocks. For a number of years a Harvard chronograph has been used in the department of physiology and pharmacology of the Michigan State Laboratory. Because of the conditions imposed the results were not at all satisfactory.

Due to a reorganization of the laboratory courses in 1925–26 whereby all students were required to perform a regular series of physiological experiments, the load upon the clock and the consequent annoyances resulting from its malfunctioning became unbearable. In casting about for a remedy the difficulties were casually stated to Mr. Phippeny, at that time operator of WKAR. After making a careful survey of the situation Mr. Phippeny stated that the pendulum-driven Harvard chronograph should satisfactorily meet our conditions provided certain changes were made in the wiring.

The large pendulum-driving magnet (Figure 1 *A*)



was rewound with No. 30 B & S enameled copper wire, and the connecting wires on the chronograph were rearranged in such a manner (see Figure 1) that the pendulum is driven by a shunt from the main source of current. In order to meet our needs for time magnets at fifteen or twenty desks a 24-volt storage battery and a rectifier were installed, and the bobbins of the Harvard signal magnets were rewound with No. 38 B & S enameled copper wire.

Current is supplied to the desk from a line of about 100 feet attached at *L L'* and enclosed in overhead conduits. Readily removable drop cords of proper length extend to the desks. When not in use these cords are removed and stored. When the conduit was installed three wires were placed therein so that two different time intervals would be obtainable at all desks, and a special three-prong plug was used upon the drop cords. To allow for this an extra time bar takeoff *F* was to be placed upon the proper support and suitable connections made. Although this has not been carried to completion the special three-point plug has frequently prevented students from plugging into the 110-volt current which is also carried about the laboratory in conduits.

During the time this chronograph has been in operation there have been two difficulties with which we have had to deal. The small storage batteries originally installed were found to be inadequate and it was necessary to charge them continuously when all the desks were occupied. The variations caused

by changes in the load necessitated frequent adjustments of the platinum-tipped screws of *E* and *F*. More recently since two large 12-volt storage batteries have been installed there has been little difficulty in keeping the batteries charged, but when fully charged they are capable of overheating and burning the spring of the time bar takeoff *F* if there is a short circuit in the line. Such an accident occasionally happens when one of the students, who is inexperienced in affairs electrical, attaches both wires from the time clock to the frame of the signal magnet, *i.e.*, one to the regular binding post and the other to the screw intended for adjusting the writing point. It is expected that this difficulty will be overcome by the installation of a suitable fuse.

ALVAH R. MCLAUGHLIN
UNIVERSITY OF WYOMING

METHODS OF COLLECTING CARCASSES

THE conducting of a zoological field problem which requires the collecting of bird and mammal carcasses may represent an almost unjustifiable demand in the amount of time and effort required. The matter of securing a quantity of material of such species as fox, mink, weasel and owl (all forms of more or less wide and elusive range habits) and the bringing into the laboratory of the material needed for investigation of such questions as can be determined only by the compilation of data secured from specimens, may most efficiently be accomplished, according to my experience, by employing the help of sportsmen, taxidermists and raw-fur dealers. There are several distinct advantages in securing the material in this way. First, it is a practical impossibility for one worker in a limited time to take in the field or to trap any of our local carnivora, for example, in sufficient numbers to furnish adequate data. Second, something may be contributed to the spirit of conservation if the carcasses of animals secured by these people, otherwise wasted, can be utilized for a laboratory analysis of certain ecological factors. Third, some knowledge as well as sympathy and enthusiasm concerning the biology and conservation of game may be shared by the laymen and the scientific investigator by such cooperative efforts in collecting the necessary material. Fourth, local history of a species and information regarding its local habits as gleaned from sportsmen and farmers, while not always reliable, are often sufficiently accurate to be of material value to the investigator.

In order to enlist the greatest number in getting material the worker must approach the sportsmen and dealers, and present his problem in such a manner as to gain their respect for his project. After that the best technique I have developed in two years of experimenting is to distribute a series of large cans, buckets or kegs—one- to ten-gallon containers—each fitted with a tight cover and tagged with a proper label. Each receptacle should contain a 5 per cent. solution of formalin. Such a container delivered to the sportsman, taxidermist or raw-fur dealer enables him, with the least amount of trouble to himself, to preserve, merely by dropping into this container, the carcasses which he has at hand—a most important consideration for the investigator who wishes to secure a quantity of material.

The first collecting of this kind made by the author consisted of the stomachs and entrails of ruffed grouse. Early in this work it was noted that a rather low per cent. of birds estimated to have been killed was being contributed by cooperating sportsmen. To meet this condition a greater number of formalin jars were distributed, which allowed gunners to save a greater quantity of material without fearing that they were incriminating themselves before the law, in respect to the bag limits on grouse, or shadowing their self-respect in consideration of the growing scarcity of this bird.

Such collecting operations, according to my experience, never increase the kill in a community, but may actually lessen it since the sportsmen know that one phase of the study is that of evaluating the effect of the hunters' kill upon the maintenance of the species. But their knowledge of that aim of the study may spell failure in the securing of any appreciable percentage of the numbers killed during the open season, unless the collector has gained the confidence and respect of these people and is careful to spread the feeling that any contributing effort on their part is valued by him and that the success of his undertaking is of fully as much importance to them as to him.

To secure any field data of value with the individual specimens collected is, I have found, always a difficult matter. Sometimes to insist that labels be attached to the individual specimens results in the falling off of the amount of material secured. Fur dealers and taxidermists from whom I have received the greatest cooperation do not have at hand any exact information regarding many specimens which come into their shop. Many others do not like to be questioned thus closely regarding their field operations.

Two kinds of labels for attaching to specimens have been used with some success. Mr. Perry J. Nickerson, taxidermist at Syracuse, New York, has instituted a very practical method for the use of cooperating taxidermists who book a record of specimens as they come into the shop. He uses a small numbered aluminum tag with a wire attachment. When a specimen is brought into the shop the carcass