**RESEARCHES IN PHYSICS DEPARTMENT**

By PROF. H. F. GOODWIN.

A number of researches are at present in progress in the laboratory of Physics, some of them being purely mathematical, while others are having a technical bearing.

In the Laboratory of Heat Measurement Professor M. W. King is conducting a number of researches on the heat properties of various materials, which are of great technical interest and value. Among these investigations are those of Mr. K. A. Stellwagen on the heat conductivity of metals, of Mr. W. C. King and Mr. Philip Harris on the Hardness of Certain Irons and of Mr. J. T. Whitney on the Conductivity of Electric Currents through Concrete Walls.

Stellwagen's thesis is an extension of the work carried on for a number of years by the laboratory in Heat Measurements. The increasing use of high temperature steam and electric current in industry has necessitated the extension of the older observations. In high temperature ranges, some new and unusual methods have been adopted which have greatly increased the accuracy and value of the investigations.

An important result of the thesis of Mr. King and Mr. Harris is the new light thrown upon the problem of the fixation of atmospheric carbon. The reaction involved in the manufacture of calcium carbide, the reaction involved in the manufacture of calcium carbide, is not a simple chemical reaction but rather a complex physical process.

**Lectures by Prof. H. F. Goodwin.**

Stationary! It is now generally believed, and, in fact, the modern theory of light in its orthodox form requires that the motion of the source makes no change in the velocity, but the question has never been dealt with in a proper way experimentally, and if answered affirmatively it would have profound importance in modifying not only optical but also electromagnetic theory. There seems to be no way to test this result of answering the question, but by the careful observation of the motions of at least two stars, it seems possible to get definite data on the subject. A little thought will show that if the velocity of light depends upon the motion of the source, we will see a revolving star relatively faster in its approaching positions than in its receding positions for the light comes to us faster from the source than from the detector. The apparent motion will, therefore, be determined by the relative motion of the star and the amount of the deviation from the law of gravitation we may hope to detect any deviation due to this source.

This is now being done, but it involves the careful analysis of the results of many observations on double star orbits and consequently requires some time. A preliminary report will be published shortly.

Professor Stellwagen has been working on the theory of magnetism. It is hoped to show that the paramagnetic metals like iron, nickel, cobalt, and copper, are not in general diamagnetic. The difficulty of the experiments is first getting rid of the large paramagnetic effect so that the small diamagnetic effect can be studied. It is possible to obtain the diamagnetic effect and to measure it, but the small effect will be very difficult to detect. The results of these experiments are now being published, and it is hoped that the final results will be published in the near future.

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Dr. Kolman and Mr. Faxon are engaged upon an investigation of the effect of the motions of celestial objects on the magnetic field. They have found that the motions of the sun's rotation on the magnetic field have a somewhat interesting result. Experiments have been made to study the motions of the sun's rotation on the magnetic field. The results of these experiments have been published, and it is hoped that the final results will be published in the near future.

The dinner for Company B will take place in the Dining Hall at 6:40 P. M. at the card room in the Union.

Meeting of all members Aereo Club 4:30, Tuesday, Union. Election of new officers May 30th.

**GREAT CHANGE.**

These wishing photographs which appeared in the Boston Globe on April 27th with the caption "The new flying machine by W. P. Farnum. Team picture, 20 cents, individual, 50 cents."