The announcement of the discovery or invention often is limited to a plain statement of claims without any explanation of how the new development has been obtained.

Notable examples in recent months include:

(1) The announcement of durium, the synthetic plastic of which the fifteen-cent "Hit of the Week" phonograph records are manufactured. The publicity on this development simply stated that a new and suitable plastic had been developed, and the materials used and the composition of the plastic were not revealed.

(2) The carbon monoxide removing attachment for automobiles developed by Dr. J. W. C. Frazer, of the Johns Hopkins University. What this device does was told in the announcement, but how it operates and the composition of the materials contained in the cannister were not made public.

(3) The development of a super-speed motion picture film by the Eastman Kodak Company. The benefits to be derived from the use of this film, soon to be placed on the market, were elaborated, but no technical information about the emulsion or the research that led to the development of this speedy emulsion could be obtained from the company even after it was pointed out that this information would be desirable.

Such instances will undoubtedly multiply in the coming months and years.

It is recognized that for the commercial protection of some of the companies supporting research there must be some instances in which it is impossible to reveal the technical details and steps of the scientific procedure that led to the discoveries and inventions being exploited commercially.

In many cases, however, lack of scientific detail is not due primarily to the fear of revelation of any material which would interfere with commercial exploitation or the obtaining of a patent. It seems to arise from the fact that many of the announcements are prepared and visaed by the sales, advertising and other purely commercial departments of the company supporting the research.

It is not proposed that the commercial side of an industry be relegated to a position of absolute subordination to the research laboratories and the scientists employed. But it is suggested that the progress of science and the understanding of science on the part of the general public will be accelerated if scientists in industrial work will insist, so far as possible, that publicity reports of their work be as carefully prepared and as revealing as reports intended for publication in scientific and engineering journals.

WATSON DAVIS

SCIENCE SERVICE

THE LIFE OF BOOKS

[Apropos of the reference to "Life of Books" in SCIENCE, Feb. 27.]

THIS has long been a subject of great concern to librarians, under our present system of heating, the most of which is unhygienic, as practicing physicians and others will confirm, from the time of Franklin.

The disintegration of bindings I find largely confined to leather, particularly the Russian leather type. There is, however, in my library a wonderfully preserved volume, bound in human skin, in 1861—the skin from a soldier who died in the Civil War. This has completely resisted the effect of both the steam and hot water system of heating, and is in as perfect condition to-day as when bound in '61.

In a voluminous scientific correspondence which covers the period 1838–1891, the only writing paper which shows disintegration in the whole series of letters is the blue paper used by the Smithsonian Institution, principally letters of Joseph Henry and Spencer F. Baird during the 50's and 60's of the last century.

JOSEPH LEIDY II

REPORTS

THE MILTON AND CLARK AWARDS AT HARVARD UNIVERSITY

AWARDS amounting to more than $60,000 have been made from the Milton and Clark Funds to members of the teaching staff of Harvard University to enable them to carry on research during the academic year 1931–32. The following list contains the names of those to whom the awards in the physical and biological sciences have been made and a statement of the purposes for which the grants will be used.

Henry E. Bent, instructor in chemistry, for study of the electron affinity of a number of organic free radicals in order to obtain quantitative data relative to the valence of carbon.

Raoul Blanchard, professor of geography, for continued geographical exploration field-work along the north shore of the St. Lawrence estuary from Quebec to the Strait of Belleisle.

Nicholai A. Borodin, curator of fishes, for study of the "Anabiosis" or the phenomenon of resuscitation of fishes after being frozen.

Paul E. Boyle, instructor in operative dentistry, for study of the circulation of the dental pulp.

William J. Clench, lecturer on zoology, to collect

in the Florida Everglades the highly specialized molluscan fauna modified to live in the trees of the isolated hammocks.

Lemuel R. Cleveland, assistant professor of protozoology, for study of the wood-feeding roach, *Cryptocercus punctulatus* Scudder.

Carleton S. Coon, associate in anthropology, for rewriting and bringing up to date Ripley's "Races of Europe."

Reginald A. Daly, Sturgis Hooper professor of geology, Kirtley F. Mather, professor of geology, Donald H. McLaughlin, professor of mining engineering, and L. Don Leet, instructor in seismology, for study to determine the elastic constants of rocks for the Quincy and Westerly granites by measuring the velocity of transmission of vibrations from dynamite blasts.

Walter F. Dearborn, professor of education, for the construction of a stereoscopic optometer to study differences in the eyes of school children who have difficulty in learning to read.

Merritt L. Fernald, Fisher professor of natural history, to map the ranges of living plants as important checks on historical geology.

Willard J. Fisher, lecturer on astronomy, and Harlow Shapley, Paine professor of practical astronomy, to help finance a scientific investigation of meteors in Arizona.

Edward W. Forbes, director of the Fogg Art Museum, to develop a technique for the transference of Asiatic wall paintings and study the properties and application of varnishes and other protective coatings as a means of preservation.

Russell Gibson, instructor in geology, to correlate a series of sedimentary rocks in the Northwest, determine the relationship of certain intrusive igneous rocks to the central Idaho intrusive, determine the origin of the ore deposits, and discover the extent of glaciation and the possible modification of the gold-bearing stream gravels by glaciers.

Louis C. Graton, professor of mining geology, to build a precision photographic microscope for the study of "opaque" materials by polarized light.

George B. Kistiakowsky, assistant professor of chemistry, to study the oxidation of gaseous hydrocarbons, particularly the oxidation of acetylene, so as to derive a kinetic interpretation.

Alexander McAdie, Abbott Lawrence Rotch professor of meteorology and director of the Blue Hill Observatory, for the further development and installation of a thermodynamic thermometer.

Henry A. Murray, Jr., assistant professor of abnormal and dynamic psychology, to study the psychology of humor, and the relationship between certain psychological and physiological processes.

Ralph B. Perry, Edgar Pierce professor of philosophy, to record the thought and character of William James, as revealed in unpublished correspondence, notes and marginalia.

Gregory Pincus, instructor in general physiology, to investigate the nature of the development of the temperature-regulating mechanism in mice, and record the various interrelated phenomena.

Percy E. Raymond, professor of paleontology, to study Paleozoic myriapods and Paleozoic crustaceans, other than trilobites, in England, Scotland and Ireland.

Lawrence D. Redway, associate in anthropology, to initiate investigation looking toward the creation of a new and accurate color scale for the anthropologic classification of eye structure and pigments by means of color photography.

Albert Sauveur, Gordon McKay professor of metallurgy and metallography, to purchase a Southwark 60,000-pound Universal testing machine.

Marshall H. Stone, assistant professor of mathematics, for expenses incurred in preparing for publication a manuscript on "Linear Transformations in Hilbert Space."

Morgan Upton, instructor in physiology and in psychology, for investigating temperature changes in active nerve tissue at the laboratory of Professor A. V. Hill in London.

Robert DeC. Ward, professor of climatology, to prepare for publication data on the climatology of the United States, Mexico and the West Indies, as a contribution to a new *Handbuch der Klimatologie*.

Ralph H. Wetmore, assistant professor of botany, to make collections in Panama to facilitate the further study of phylogeny in the angiosperms.

Robert H. Woodworth, instructor in botany, to investigate the origin and development of vessels in seed plants as bearing on the question of phylogeny of plant groups.

Jeffries Wyman, Jr., instructor in zoology, to study the dielectric properties of amino acids and proteins.

The Milton Fund, created by the will of William F. Milton, '58, came into the possession of the university in 1924. Under the terms of that bequest, the income must be used "in the interests of, or for promoting, the physical and material welfare and prosperity of the human race, or to assist in the discovery and perfecting of any special means of alleviating or curing human disease, or to investigate and determine the value or importance of any discovery or invention."

This is the first year in which grants from the Clark Fund have been available. It is founded on a bequest from Joseph H. Clark, '57, who provided that "the income shall be devoted to the encouragement and advancement of original research."

Dr. Frank B. Jewett, electrical engineer, of New York City, and Professor Edwin F. Gay and Professor William M. Wheeler, both of Harvard, make up the committee to advise the president and fellows in selecting purposes for which grants are made.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A MODIFIED FORM OF KUNDT'S TUBE

IN this form of Kundt's tube the air column is set in vibration by a reed from a mouth organ; the reed being actuated by a blast of air. The cork to which the reed is attached is moved back and forth in the glass tube by means of a hollow brass rod which also conducts the compressed air to the reed. At the nodes the vibration of the reed is dampened while

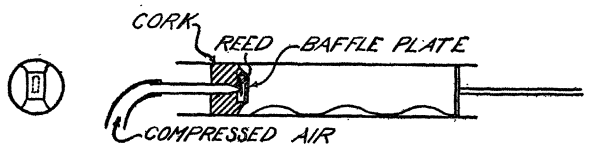

FIG. 1

at the loops, the intensity increases greatly. Thus a large class can listen to the change in intensity. The shadows of the cork particles in vibration may also be projected upon a screen. The success of this instrument is due to the introduction of a baffle plate in front of the reed by Lee Fullmer of our laboratory. This leaves two small rectangular openings in front of the reed, which are actually the sources of the vibrations transmitted to the air column. Therefore as the reed is moved back and forth it never quite ceases its vibration as it would do if unprotected. The cork which holds the reed fits loosely in the glass tube so that air escapes past it when the compressed air is turned on.

R. C. COLWELL

DEPARTMENT OF PHYSICS,
WEST VIRGINIA UNIVERSITY

AN INEXPENSIVE GLASS MARKING PENCIL

A VERY satisfactory substitute for the diamond pencil generally used for marking glassware may be easily made from an ordinary file. A six-inch round file is most convenient, but the triangular variety will serve. To make the pencil, the tang of the file is broken off, and the large end of the body is ground to a point. It is then heated to a bright red, and rehardened by plunging into mercury. Triangular points with sharply cut facets have given the best results of the various styles tried. Round points require heavier pressure for marking and appear to be less durable. It is important that the slope be rather short and that the angle between facets at the point be not less than ninety degrees. Long sloping needle-like points have a gouging action that makes neat marking impossible. About an inch of the file should be heated in a Fisher burner, and the cutting point should be kept out of the flame till the portion back of it is red-hot. The hardening operation is best done in a hood to avoid danger of inhaling mercury vapor. A pyrex test-tube is convenient for holding the mercury, and if a number of the pencils are being made, it may be placed in a water or ice bath.

The writer has tested a number of these markers in comparison with a splint diamond and one of the new tungsten carbide pencils, and has found them entirely satisfactory. It is to be expected that the steel pencils will be less durable than the diamond or the tungsten carbide markers, but they will apparently outlast the ordinary carborundum point. One of them has been used for making over five hundred single letters or figures without marked evidence of wear, while another which was not retempered but was ground carefully to maintain the hardness of the file made barely a dozen. The cost is but a fraction of the usual price for the other pencils, and a worn point can be resharpened or a new one made in about ten minutes.

CHARLES B. DEWITT

UNIVERSITY OF TENNESSEE

SPECIAL ARTICLES

THE EFFECTS OF ULTRA-VIOLET LIGHT ON PARAMAECIUM

PROBABLY one of the most interesting problems which has ever presented itself to the physicist and the biologist alike is the effect of ultra-violet light on organisms of all kinds. Little effort seems to have been directed, however, on the well-known infusoria *Paramaecium*. In a series of experiments recently performed by the writer a number of interesting phenomena were observed.