and Contemporary Contributions to Our Knowledge of Pandemic Influenza."

DR. WILLIAM E. SHOUPP, manager of the Electronics Department of Westinghouse Electric and Manufacturing Company, gave on March 17 at Miami University a lecture on "Nuclear Physics" under the auspices of Sigma Xi and Sigma Pi Sigma. In addition to faculty and civilian students, approximately 200 V-12 students were in attendance.

THE ninth annual Harrison S. Martland Lecture of the Essex County Anatomical and Pathological Society was given at the Academy of Medicine of Northern New Jersey, Newark, on March 22 by Otto Loewi, research professor of pharmacology at the New York University College of Medicine.

DR. E. B. COWDRY, professor of anatomy of the Washington University School of Medicine, St. Louis, addressed the Los Angeles Academy of Medicine on March 3. His subject was "Precancerous Lesions."

THE Georgia Section of the American Chemical Society held a special meeting in LaGrange on March 18, under the auspices of Callaway Institute, Inc. The meeting was arranged to permit the members of the society to attend a lecture on "The Chemical Structure of Textile Fibers" by Dr. Milton Harris, director of research for the Textile Foundation of Washington, D. C., who was visiting the institute at that time. In addition to the lecture, there was an inspection tour of the institute, a visit through one of the weaving plants of the Callaway Mills, and a dinner for visitors.

THE New York Medical College has recently received gifts in memory of John Eastman Wilson from Mrs. Wilson. Dr. Wilson was professor of neurology and was associated with the college from 1902 to 1918. The sum of $100,000 is designated as a student loan fund for needy medical students and a second gift of $10,000 has been added to the endowment of the department of surgery.

CHEMICALS wanted by the National Registry of Rare Chemicals, Armour Research Foundation, 33rd, Federal and Dearborn Streets, Chicago 16, Ill., include: straight-chain organic acids of 35 to 45 carbon atoms; Cytosine (approx. 10 grams); dl Camphenilone; Coniferyl alcohol; Cadion 2B (4-nitro-l-naphthalenediazo-p-amino azobenzene); 7-Dehydrocholesterol (1 to 10 kilos); Desoxyribose; Distearyl sulfone; Epicatechin (3,5,7,3′,4′-flavanpentol); d or l-galacto ascorbic acid; l-gluco ascorbic acid; Indazole; Alpha ketoglutaric acid; Phloridzin; Tetrophine (5,6-dihydro-1,2-benzacridine-7-carboxylic acid); Kynurenic acid, and Xanthurenic acid.

# DISCUSSION

## PEACETIME RESEARCH IN WARTIME—A REPORT

IN June, 1943, the following letter was sent to 212 zoologists now in active service with the armed forces:

*Dear Colleague:*

This letter is addressed to you, among others, as a fellow scientist who interrupted the pursuit of your chosen field in order to enter the Services. Many of us who, because of age or other circumstances, remain at home, are much torn between conflicting attitudes regarding the continuation of scientific and scholarly activities in the midst of war. Probably all of us are in some way part of the general war effort. We teach now nearly exclusively premedical and nursing students, and this serves the immediate preparation for their war-important professions. Many of us also participate in special war research projects of biological or physiological nature. Some of us do not seem to possess any skills which make us valuable as direct contributors to war research. The question in our minds is this: Should we devote every hour of our time to efforts of immediate war usefulness, or should we reserve a fraction for the continuation of the research lines which were thought fruitful in a more peaceful period? We see arguments for and against either alternative. When the roof is on fire, we feel, to put out the flames is the only task behind which everything else should disappear—but we wonder whether the analogy between the few inhabitants of a house on fire and a nation at war is correct enough to warrant the conclusion that we should stop all scholarly work. We feel that the permanence of peaceful human endeavors can be assured best if we devote some time to keeping them going in wartime—but we wonder if this sentiment is only an expression of egotistical desires, of our personal pleasure in such activities.

Obviously, the question can not be decided by vote. However, it seemed to me that an expression of the opinion of our colleagues now in the Services might be of help to us at home. You may not be unbiased either; perhaps you are even shocked by the fact that questions like the one raised in this letter are under discussion at all. Whatever your opinions, should you be able to spare the time, it would be of great help to us to hear them expressed. . . .

(Signed) CURT STERN

All names were obtained by writing to sixty-six departments of zoology and asking for a list of staff members and graduate students then in the services in order "to address to them some questions bearing on science." The sixty-six institutions were selected as likely to be concerned with research in normal times. Replies were received from forty-five departments distributed widely over the country. Of the 212 letters

sent to individuals, 13 were returned marked "no record." This leaves a maximum of 199 letters which may have reached their destinations. Replies were received from 42 men, a return of about 20 per cent. Whether this should be called a low return, considering the highly selected group of recipients, or a high return, considering the demands of military life, is uncertain. It is also unknown how representative this sample is of the opinions of all zoologists in the Armed Forces. Nevertheless, an analysis of the answers is of general interest.

Intentionally, the problem was not formulated as a questionnaire; consequently, the replies did not follow a simple pattern. The first overall impression is that of intense interest. Many replies were several pages long, few only half a page. The classification of all the opinions expressed involves some subjective element, mainly due to the fact that any useful classification entails a neglect of the many individual shades of conviction. Leaving out one letter which clearly did not touch the problem posed, four categories of opinion were distinguished regarding the continuation of some "peacetime" research. These opinions, together with the arguments given for them, may be summarized as follows (each of the following quotations comes from a separate letter):

(1) *Complete discontinuation.* It is argued that all but war research should be postponed in order to secure first the liberty which will make possible later the renewal of peacetime work. "The more completely this translation of effort becomes effected, the sooner victory is assured for forces in combat. There will be plenty of time when the war is over for non-essential, cultural pursuits."

(2) *Continuation but in spare time only.* Peacetime research should be continued even in wartime, the arguments run, but this work should be pursued when other men, including soldiers, rest from their day's labor. Free research is seen by some as of general intrinsic value, by others as a means of furnishing necessary refreshment to those who devote themselves full time to the war activities of teaching and/or war research. "Recreation is as indispensable in wartime as in peacetime. Who can blame the university teacher if he chooses to devote to fundamental research the time he might otherwise spend in listening to some frenzied radio news analyst?. . . "

(3) *Continuation, after self-searching inquiry as to the basic importance of the work.* Men expressing this opinion believe in the basic value of peacetime research as part of our civilization. They stress, however, the obligation of the scientist to test himself, his motives and his projects so as to carry out research as a responsibility to society. They demand selection of important problems, discontinuation of playful techniques and all-too-private interests. A decision will depend "on the importance of a man's research program and his abilities. A great many workers are "diddlers" . . . they might well devote their energy to the war effort. There are other men whose work in the field of pure science is extremely important and certainly these men should be allowed to continue their investigations." Scientists "should reexamine their individual research projects in the light of their value to the whole scientific framework of our civilization . . . strengthen their philosophy of science."

(4) *Unqualified continuation.* This term is applied both when the writer approves of setting apart a fraction of the investigator's time for peacetime work, and when even more time for research of this kind is favored. Such continuation is an essential part of what we are fighting for. "It seems . . . to be a glowing tribute to the American way of life that research . . . is being carried on *in spite* of the war." It is "part of the battle for the freedom of the mind." "Scholarship must not be put into the luxury class." Several writers take up the simile of the house on fire which was used in the letter to them. "It is wise to have some people protect the valuables in the house." Another opinion which occurs in six different letters states that men at home "should work toward maintaining a civilian standard of science and culture that men will be glad to come back to." "I know that I hope strongly to return to a laboratory where an active research program is under way." Finally, it is argued frequently, "that if we lay aside and forget our ideals for any lengthy period of time we may fail to assume them again when the appropriate time to do so returns."

TABLE 1

OPINIONS OF ZOOLOGISTS NOW IN THE ARMED FORCES CONCERNING PEACETIME RESEARCH

| | | Discontinuation | Continuation | | | Total |
|---|---|---|---|---|---|---|
| | | | In spare time | If important | Unqualified | |
| | | 4+2? | 4+1? | 3 | 26+1? | 41 |
| Academic status | Ph.D. degree | 5 | 2 | 1 | 12 | 20 |
| | No Ph.D. degree | – | 2 | 1 | 7 | 10 |
| | Unknown | 1 | 1 | 1 | 8 | 11 |
| Military rank | Commissioned officers | 3 | 2 | 3 | 16+1? | 25 |
| | Enlisted men | 3 | 3 | – | 10 | 16 |

A question mark signifies some doubt as to the correct classification.

Table 1 summarizes the number of replies in each category. It also contains some data on the peacetime

status of the writers and on their military rank. The majority of the answers came from men in this country, but those from overseas did not differ significantly from the whole group. Personal acquaintance of the writers with the author of this survey (eight cases) did not seem to influence the opinions expressed as shown by the fact that the answers were representatively distributed.

In summary, thirty-five of these forty-one zoologists now in the Armed Forces believe that peacetime research should be carried on in wartime, "in spite of war" and even with "redoubled efforts." Of these, five are for continuation in spare time, three with restriction to important problems, and twenty-seven for more or less unqualified continuation. Six men are against continuation. It would be of interest to know what the majority of men in other fields of science, of the humanities and in general think about the problem raised.

CURT STERN

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THE UNIVERSITY OF ROCHESTER

## THE 24-INCH OBJECTIVE PRISM OF THE WARNER AND SWASEY OBSERVATORY

ONE month before "Pearl Harbor," the 24-inch Schmidt-type telescope and the building addition to the Warner and Swasey Observatory of the Case School of Applied Science were completed. Plans for an objective prism for this instrument were executed in conjunction with the design of the mounting, and the Bausch and Lomb Company agreed to furnish us with a suitable disc of optical glass for this purpose. On December 12, 1943, the completed prism was finally mounted on the telescope and during the succeeding two months extensive tests were made with it.

The one-lump mass of glass for the disc was chosen from one of the pots of optical glass. The 260-pound piece chosen was free from deep striations and air bubbles. This huge mass, one of the most perfect ever produced, was molded to shape in a deep furnace utilizing a pot design to produce a wedge shape. The flat surfaces were then polished and the disc examined with polarized light. No strains were detected. Later tests showed that the annealing of the glass was excellent. The diameter of the finished disc, before being reduced in the optical shop, was 26.75 inches; the thickness varied from 3.0 to 4.3 inches. The refractive index of this light flint glass is 1.617 with dispersion ratio of 36.6.

The grinding and polishing of the prism was executed in a most satisfactory manner by C. A. Robert Lundin, of the Warner and Swasey Company. This firm has also constructed and erected the Schmidt-type Burrell telescope of the observatory and the dome.

The diameter of the finished prism is 24.5 inches, with clear aperture of 24.0 inches and with graduated thickness from 0.75 to 2.5 inches, producing an angle of 4 degrees. The finished prism weighs 100 pounds.

The prism cell mounting is so constructed that when in place it may be easily rotated through any desired angle in a plane perpendicular to the optical axis of the telescope. The cell with the prism forms a symmetrically balanced mass of 150 pounds. A 26-inch ring-weight of 150 pounds situated in front of the correcting lens is first removed from the telescope when the prism is to be mounted, thus avoiding any re-balancing of the instrument.

The optical system of the Schmidt telescope is composed of a 36-inch mirror of pyrex glass with aluminized surface and a 24-inch correcting lens of Vitaglass, 0.34 inch thick. The effective focal length of the instrument is 84 inches. The plate holder is circular and adapted for plates 8 inches in diameter yielding a field of 5°.

The combination of the prism and telescope produces spectra of 3.2 mm in length from $H_\beta$ to $H_\epsilon$.

The quality of the spectra appears excellent. In the spectrum of the $F_5$ star α Persei 21 lines in the region from $H_\beta$ to $H_{16}$ have been identified. Both focal images and spectral images are of excellent definition to the very edge of the plate.

The main program of the prism telescope combination will be the study of the structure of the galaxy through spectral type distributions and related problems. Plates already secured indicate that absolute magnitude classification as well as spectral types may be readily studied with these small scale spectra.

J. J. NASSAU

CASE SCHOOL OF APPLIED SCIENCE

## DIGESTIVE AVAILABILITY OF BEAN STARCH

IN view of the present emphasis on the use of dried beans a brief account of some additional observations on digestive factors in navy beans may be of interest. It was recently found that the ether-soluble fraction of these beans retards the *in vitro* digestion of soluble starch more than some of the other edible fats. In an earlier note[1] attention was called to the interference which is observed when the total ether-soluble fraction is added to soluble starch in the same concentration in which it occurs in the beans or about 1.5 per cent.

Employing 1 per cent. solutions of soluble starch adjusted to pH 7 with phosphate buffer, further study has shown that various preparations of starch and navy bean oil differ in the ease with which they are completely digested when sufficient pancreatic amylase is added to digest untreated control starch or starch containing 1.5 per cent. of olive oil, lard or butter

[1] D. E. Bowman, SCIENCE, 98: 308, 1943.