cations for the year 1945–46 should be in the hands of the committee by December 15. It is expected that the award will be made by March 15, 1945. Application for the fellowship should be addressed to The Committee of the Lewis Cass Ledyard, Jr. Fellowship, The Society of The New York Hospital, 525 East 68th Street, New York, N. Y.

ACCORDING to an Associated Press dispatch from San Francisco, the Federal Circuit Court of Appeals on August 23 withdrew its opinion of June 30, 1943, which invalidated valuable patents held by the Wisconsin Alumni Research Foundation for preventing and curing rickets through food treated with ultraviolet rays. The court gave no explanation of its action. The university had petitioned for a rehearing, and action still is pending. The opinion given down a year ago was to the effect that a process using sunlight could not be patented, since solar energy was available to all mankind, and that the Steenbock patents were invaluable discoveries but not inventions. The patents have yielded $7,500,000 in royalties from 250 licensed companies.

THE Royal Institution of Great Britain has established nine graduate memberships, three of which will be awarded annually to recent graduates, of either sex, of any university in the British Empire who have taken a degree with either first or second class honors in any scientific subject. Membership will give the holder the full privileges of members for three years, except the right to attend or to vote at any meeting.

BY authorization of the University Court the department of chemistry in relation to medicine of the University of Edinburgh will in future be known as the department of biochemistry.

IT is reported in *The Times*, London, that it has been decided to take back to London, for the session beginning on October 1, the Faculties of Arts, Science and Engineering, which for five years have been evacuated. In spite of the badly damaged state of the University College buildings, it is hoped that the Science and Engineering Departments will be able to reopen with normal laboratory equipment for teaching. The Faculty of Arts, almost the whole of the accommodation for which has been destroyed by enemy action, will be housed in temporary quarters now being prepared.

THE first report of the British Colonial Products Research Council has been issued as a White Paper, according to which preliminary results of laboratory experiments have shown the possibility of turning large quantities of secondary timbers, for which there is no economic use at present, into a carbohydrate suitable for use as cattle food. By the methods so far developed in producing the cattle food from timber, the price appears to be too high to permit of its use in the Colonies, but the position might be altered by finding some use for the effluent liquors. Further research will be carried out, as well as a general survey of various Colonial secondary timbers, to discover their suitability for chemical treatment. This, the report says, will be a long-term and highly speculative research, but a successful outcome would exert a profound effect on the economic use of Colonial forests.

DISCUSSION

NOMENCLATURE OF THE HUMAN MALARIA PARASITES

THE names for the malarial parasites of man have long been the subject of discussion, much of which has hopelessly intermixed zoological and nomenclatorial considerations. Stiles (1928, Opinion 101, p. 13) has aptly remarked that "the nomenclature of the parasites of malaria in man and birds represents one of the most confusing chapters in the entire history of zoological nomenclature."

The problem has been very ably and painstakingly reviewed by Christophers and Sinton.[1] We have carefully studied their paper, we concur in their conclusions, and we agree that strict adherence to the International Rules of Zoological Nomenclature would result in great confusion. The nomenclature adopted in Opinion 104 is clearly the best solution to the problem and should be maintained. However, we feel it necessary to point out that Opinion 104 did not provide an official answer, notwithstanding the fact that zoologists have for years regarded it as the final decision in the matter.

[1] R. Christophers and J. A. Sinton, *British Medical Journal*, 2: 1130–1134, 1938.

NOMENCLATURE OF THE HUMAN MALARIA PARASITES UNDER A STRICT INTERPRETATION OF THE RULES

Oscillaria Laveran, 1881, (type, *O. malariae* Laveran, 1881, the parasite of malignant tertian malaria; by monotypy). Malariologists are now agreed that Laveran had the sexual forms of this species, only, in his first paper cited above.

= *Plasmodium* Marchiafava & Celli, 1885, (type, *P. malariae* Laveran, 1881, parasite of malignant tertian malaria; by monotypy).

= *Haemamoeba* Feletti & Grassi, 1890, (type, *H. malariae* Feletti & Grassi, 1890, parasite of tertian and quartan fevers in man; by monotypy). The name

has been shown to include two species, and therefore is not really monotypic. Grassi & Feletti later in 1890 restricted *malariae* Feletti and Grassi to the parasite of quartan fever and proposed *H. vivax* for the tertian producing form. Result: the type of *Haemamoeba* is *H. malariae* Feletti and Grassi, as restricted by Grassi and Feletti to quartan fever. In the genus *Plasmodium* it is a secondary homonym of *malariae* Laveran, 1881, and the next oldest available name, *quartanae* Celli & Sanfelice, 1891, is valid.

= *Laverania* Feletti and Grassi, 1889, (cf. footnote, Christophers and Sinton, 1938, p. 1133) (type, *Oscillaria malariae* Laveran; by monotypy).

= *Haematozoon* Welch, 1897, (type, *Haematozoon falciparum* Welch, 1897; by monotypy).

Conclusions, under a strict interpretation of the Rules:

(1) If zoologists agree on one genus for the malarial parasites, its name, as shown above, would be *Oscillaria* Laveran, because this name is not invalidated either by previous use in botany (Code, Article 1) or by its unsuitability (Article 32). It will be noted that all five generic names were monotypic as originally proposed, and that three—*Oscillaria, Plasmodium, Laverania*—have identical type species and would be isogenotypic synonyms whatever classification is used.

(2) If zoologists decide that two genera are required, the name *Oscillaria* would be strictly correct for the parasite of malignant tertian fever, and *Haemamoeba* for the other two.

(3) The names of the classical species of malaria under a single genus would be as follows:

Oscillaria vivax (Grassi & Feletti, 1890)—Tertian malaria.

Oscillaria quartanae (Celli and Sanfelice, 1891)—Quartan malaria (to replace *malariae* Feletti & Grassi, 1890 nec Laveran 1881).

Oscillaria malariae Laveran, 1881—Malignant tertian malaria.

It is generally agreed that such conclusions would result in great confusion in medical and zoological literature. The generic name *Plasmodium* and the specific names *malariae* (quartan)[2] and *falciparum* (malignant tertian) have long been accepted by malariologists throughout the world. This usage was supported by Opinion 104 in which *Laverania* and *Plasmodium,* together with 55 other generic names, were placed on the "Official List of Generic Names" with "malariae (as restricted to quartan fever)" designated as the type of *Plasmodium* and *falciparum* Welch (1897) designated as type of *Laverania.* The matter would thus appear to have been settled but for the following significant statement by Stiles (1928) in the presentation of the case for Opinion 104: "The Secretary has personally checked these names and believes that they are all nomenclatorially available and valid, and that, therefore, they can be adopted in harmony with the Rules instead of as Nomina Conservanda."

Contrary to this usage in Opinion 104, it is clear that *malariae* as used in the combination *Laverania malariae* by Grassi and Feletti was *not* a homonym but was the original *malariae* of Laveran, that *falciparum* therefore was an unnecessary substitution, that *falciparum* after all was not the next oldest available name, that "*malariae* (as restricted to quartan fever)" could not be the valid type of *Plasmodium* Marchiafava and Celli, 1885, since the *Plasmodium* of that date was based on *malariae* Laveran, the parasite of malignant tertian fever, and that *Oscillaria* Laveran, 1881, antedates both of the above generic names.

To have arrived at any one of the conclusions stated in the Opinion would therefore have required a Suspension of the Rules. Inasmuch as the Rules were not suspended for any of the names approved in Opinion 104, we submit that the names *Laverania* and *Plasmodium* hold a place on the Official List in direct contravention of the Rules, rather than being maintained and protected by them.

In the present instance, we are faced with an "Official List" containing certain names which are not official in the sense that the action necessary to make them so was never taken. We can find no justification for believing that names placed on the Official List, merely in the absence of any expressed "objection, question, or adverse comment" (Opinion 75, p. 35) at the time, are thereby conserved to eternity and not subject to critical evaluation. Since the names *Plasmodium malariae* (quartan) and *falciparum* (malignant tertian) are generally accepted in zoological and medical literature and since it was apparently the intention of the International Commission to fix these names, we respectfully request that the International Commission of Zoological Nomenclature legalize Opinion 104 as it applies to the malaria parasites by suspending the Rules and taking the following action:

1. Suppress the generic name *Oscillaria* Laveran (1881) in favor of *Plasmodium* Marchiafava and Celli, (1885).
2. Suppress the species name *malariae* Laveran (1881), and any other names for the parasite of malignant tertian malaria, in favor of *falciparum* Welch, (1897).
3. Establish *malariae* Feletti and Grassi (1889, 1890) nec *malariae* Laveran (1881) as the valid name for the parasite of quartan malaria.
4. Designate as the type of *Plasmodium* Marchiafava & Celli (1885)—*Haemamoeba malariae* Feletti & Grassi (1889, 1890).

[2] According to Christophers and Sinton (1938), the name *malariae* Laveran was first applied to quartan malaria erroneously by Lühe (1900).

5. Designate as the type of *Laverania* Feletti and Grassi (1889)—*Haematozoon falciparum* Welch (1897).

In summary, the actions recommended above would legalize existing practice as follows:

Plasmodium vivax (Grassi and Feletti, 1890), parasite of tertian malaria.

Plasmodium malariae (Feletti and Grassi, 1889, 1890), parasite of quartan malaria.

Plasmodium falciparum Welch (1897), parasite of malignant tertian malaria.

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A NEW PHILOSOPHY OF PREVENTIVE MEDICINE

To the significant accomplishments reported in a recent article concerning "Recent Contributions of the Preventive Medicine Service of the U. S. Army," which appeared in the issue of SCIENCE for July 21, 1944, there may be added accomplishments of a different nature which have resulted from the unique problems which occur in the Army Air Forces. I refer to the service which the Medical Department of the Army Air Forces has rendered to flying personnel.

The medical officer in the Army Air Forces has enjoyed always an intimate association with line personnel. From this association there has evolved a unique type of preventive medicine. It results from the interest of medical officers in equipment—equipment designed to protect flying personnel, thereby increasing their efficiency to that of their aircraft. Because the medical officer is concerned with the human organism, he scrutinizes equipment from the standpoint of its usability. In addition, he is in a position to supply the engineer with certain physiological data and criteria to be used as a basis for the construction of equipment.

That this point of view has actually been placed in practice is evidenced by the fact that the Air Surgeon has not only interested himself in oxygen equipment but also has been made responsible for its development. Without this equipment, personnel could not fly efficiently above ten thousand feet. It is obvious, therefore, that through the use of oxygen equipment the air man may operate efficiently at the altitudes to which his airplane is capable of flying. At the same time, he is protected from the adverse effects of anoxia.

A few of the other developments in which the Air Surgeon has interested himself, or for which he has been responsible, aimed at the maintenance of a normal physiology, the production of maximal efficiency or the prevention of injury in flying personnel are:

(1) *Shoulder harness:* This equipment is utilized to prevent injury on rapid deceleration, such as in a crash.

(2) *Parachutes and improved parachuting techniques:* At the instigation of the Air Surgeon, an extensive program in parachuting has been adopted by the Army Air Forces.

(3) *Anti-G equipment:* The Air Surgeon has been responsible for the development of equipment in the Army Air Forces for combating accelerative forces encountered in flight.

(4) *Gun turrets:* Anthropometric measurements and their applications have resulted in redesign of gun turrets and the arrangement of equipment in the turrets.

(5) *Aircraft instruments:* In order to promote the efficiency of pilots, the Air Surgeon has interested himself in standardization of aircraft instruments and cockpit arrangements, not only to prevent injuries, but also to increase the speed of learning and operation.

(6) *Flying clothing:* Investigations in the use of clothing, including electrically heated clothing, and other measures to combat cold and frostbite have been accomplished.

(7) *Flak suits:* The flak suit was originated by a senior flight surgeon, Brigadier General Malcolm C. Grow, U.S.A., as a measure to prevent injury to flying personnel from flak. It has proved to be successful and has prevented not only many serious injuries but also many deaths.

(8) *Ditching procedures:* Original impetus to the study of ditching procedures came from medical officers in the Army Air Forces in theaters of operation and has resulted in the prevention of injury to many individuals.

One of the most outstanding achievements in modern physiology has been the Altitude Training Program which was originated and is conducted by the Air Surgeon. This program has provided instruction in the physiology of flight to all flying personnel, in an attempt to prevent deleterious effects from flight through knowledge of the physiological problems encountered.

The opportunities for extension of this philosophy of preventive medicine to other fields in the postwar world are manifold.

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SEX DIFFERENCES IN THE SCIENCE TALENT TEST[1]

IN each of the three years of the Science Talent

[1] The opinions or assertions contained herein are the private ones of the writers and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.