arcing through a drop of sweat. The burns apparently were due to the heat from the arc as well as to the drops of sweat that were heated by the arcing.

Although it is possible to heat the body in the enclosed celotex box by the use of the short radio waves alone, time was saved by using the hot air blowers. The circulation of the hot air around the body prevented some heat loss because the air in the enclosed chamber rose from room temperature to 122 degrees F. in twenty minutes. The maximum temperature of the air in box at any time was 131 degrees F. The circulation of the air apparently keeps the humidity throughout the atmosphere in the chamber more uniform. Sweating occurred under these conditions, but the circulating hot air helped to prevent arcing and burning.

Although we are able to produce successfully artificial fevers with the radio waves as described, we realize that the equipment used and the method for applying this form of energy to heat the body can be greatly improved, and this is rapidly being done. Various theories explaining the rise of temperature of the body when exposed to short radio waves have been discussed by Carpenter and Boak[7] in another report. We believe that the development of heat is due to the resistance of the body to the conduction of current between the surfaces adjacent to the opposed plates. At each alternation of polarity of the plates the corresponding polarities are induced upon the adjacent boundaries of the interposed body and current is conducted through the material for a brief interval. The heating of solutions similar to the blood serum is dependent directly upon their electrical resistance. It has been shown that dilute solutions of different salts when of the same electrical resistance exhibit practically identical heating effects. In this report, however, we have concerned ourselves primarily with a method for raising the body temperature. Through the cooperation of Drs. D. Glen Smith and R. A. McTaggart, of Schenectady, New York, we have been able to study the effect of such heatings on patients suffering from various diseases. The use of therapeutic fevers is still in the experimental stage, but they have great possibilities if our conception of the significance of a febrile reaction is correct. We have studied the effect of fevers produced by short radio waves on various laboratory animals and on twenty-five patients, and thus far we have failed to observe any objectionable effect unless extremely high temperatures are maintained for long periods. We have proceeded, of course, with caution, and have followed closely the variations in body temperature, blood pressure, the pulse and respiration. The use of such a method demands conservatism and sound judgment because of the comparatively short time it has been studied. However, we are of the opinion that, because of the practicality of this method of heating, it may be of value not only to the clinician, but also to the physiologist, the biochemist and the bacteriologist.

Studies of infectious diseases in laboratory animals that will be reported elsewhere lead us to believe that two desirable effects are obtained by raising the body temperature. First, the increased heat within the body makes a less favorable environment for the multiplication of a virus. Second, the heat increases the rate of those chemical processes concerned with the development of immunity and with the general defense mechanism of the body against infectious agents.

We are grateful to Dr. W. R. Whitney, director of research of the General Electric Company, and to Mr. K. C. DeWalt for their constant help and suggestions, and for the apparatus used in this work. We thank the staff of the Ellis Hospital, Schenectady, New York, for their cooperation.

[7] Carpenter and Boak, to be published in *Am. J. of Syphilis.*

SCIENTIFIC EVENTS

THE ZOOLOGICAL SOCIETY OF LONDON

THE London *Times* reports that the one hundred and first annual report of the Zoological Society of London, issued to fellows in anticipation of the general meeting on April 29, contains an appendix describing the centenary celebrations held last year. The addresses of the president on the general history of the society, and of the secretary on the scientific history, and the speeches of congratulation delivered by the chief delegates of other societies are printed in full. A list of the delegates who attended the celebrations and accounts of the dinner, at which the Prince of Wales was the chief guest, of the garden party attended by over 8,000 fellows and their friends, and of the dinner to the staff are given.

The body of the report, as usual, describes the progress of the society. The total assets amounted to £171,571, an increase of nearly £30,000 on the preceding year, but the liabilities were increased by £44,673, due almost entirely to a bank loan to defray the cost of the new refreshment rooms. On account of the tenure of the gardens, the value of buildings erected by the society can not be included in the assets. The income was £7,000 and the expenditure £5,000 less than in 1928. Rent, rates, income-tax and insurance cost over £5,000, provisions for the animals £15,500,

scientific work, including the library and the cost of publications, cost nearly £10,000. The admission fees and subscriptions of fellows amounted to over £24,000, the income from gate-money was nearly £66,000, from the aquarium over £16,000, and the refreshment-room profits were nearly £17,500.

The pathologist reports that there was a notable decrease in the incidence of tuberculosis in mammals and birds since the construction of the new Monkey House and the Bird House. It is noted that, although special attention was given to cases of disease among parrots, there was no case of psittacosis during the year and no outbreak of epizootic disease in any of the aviaries. On the other hand, an acute and rapidly fatal outbreak of enteritis, peculiar to Felidae and known as "cat distemper," occurred during August and September.

Considering the limited accommodation, there was a good deal of breeding. Three lions, six wolves, five foxes, a baboon, a yak, an American bison, a mountain zebra, a Bactrian camel, a Mongolian wild horse, a kiang, five deer, five antelopes, seven mouflon, seven thar, five Barbary sheep, three ibex, a beaver, a fruit-bat, as well as many smaller mammals, were bred and reared. The experimental breeding of budgerigars was continued, and 229 were bred and reared, including 86 of the blue and nine of the cobalt varieties. A large number of pheasants and some wild turkeys and geese were bred on the society's estate at Whipsnade.

ASSIGNMENT OF PATENT RIGHTS TO THE ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE

THE announcement by Dr. E. A. Doisy at the thirteenth annual Physiological Congress in August, 1929, of the isolation of a follicular hormone has given rise to so many personal problems for Dr. Doisy and so many administrative problems for St. Louis University that effective measures had to be devised for dealing with them. Quack remedies of various kinds have quoted their potencies in Allen-Doisy rat units and have used the discovery of the "sex remedy" in various entirely unjustifiable advertising appeals. In at least one case, the university was forced either to enter a disclaimer or to protect its good name by still more stringent measures. In the interest of public health, ethical advertising and recognized standards in pharmaceutical manufacture, the president of St. Louis University has created a committee to be known as the Committee on Grants for Research, composed of the dean of the School of Medicine, the associate dean and the professor of biochemistry, to deal with full power with the various questions arising out of the situation.

On February 7, Dr. Doisy and his coworkers, Clement D. Veler and Sidney A. Thayer, had assigned to St. Louis University any patent rights which may be thought wise to secure in order that the difficulties just enumerated might be properly met. The terms of the donation provide that the eventual income, if any, is to be used entirely for the prosecution of research in the School of Medicine; any funds accruing are to be administered as the other funds of the School of Medicine subject to the general financial policies of the university.

The president of the university, in accepting this donation, committed to the newly established Committee on Grants for Research the administration of all contractual or other relationships which may arise within the university or out of it from the newly isolated product. He further empowered the committee, subject to the general university administration, to allot its income in accordance with the wishes of the donors and to administer a testing laboratory for ensuring a uniform and a dependable product.

The Council on Chemistry and Pharmacy of the American Medical Association recognized Dr. Doisy's right to name the newly isolated compound and has approved of the name "Theelin" for this follicular hormone. The Committee on Grants for Research has completed arrangements with a reputable commercial house manufacturing biological products. By the terms of the agreement, provision is made that all developments in the preparation of "Theelin," its clinical applications and the discovery of its properties must be shared alike by the university, on the one hand, and the licensee or licensees under the patent rights, on the other. In effect, therefore, cooperative research by all those interested in the manufacture and sale of the product is assured.

The one manufacturing company which has thus far been licensed will enjoy the exclusive right in the United States for the manufacture and sale for eighteen months. After that period, however, the patent rights are not restricted and other firms may be given license to manufacture and distribute under the same restrictions under which the first licensee is operating. The fullest liberty of publication is assured by the terms of the agreement. Moreover, all licensees will be required to submit their products to the testing laboratory of the university. It is the intention of the university to publish the various documents in regard to these arrangements in a special bulletin.

THE PLACEMENT SERVICE OF THE FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

SOME ten years ago the Federation of American Societies for Experimental Biology, comprising the American Physiological Society, the Biochemical So-