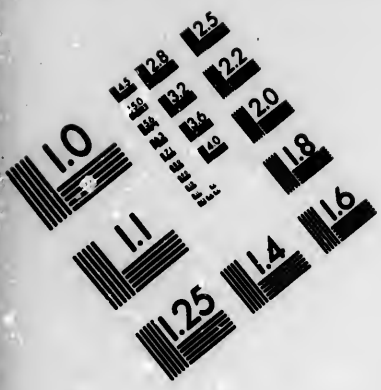


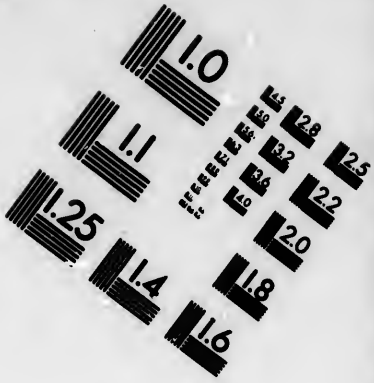
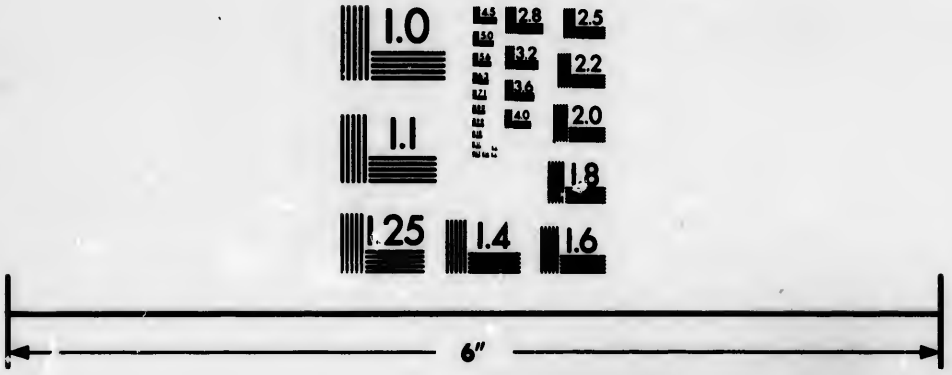
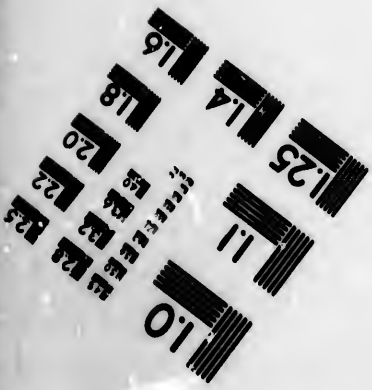


IMAGE EVALUATION TEST TARGET (MT-3)





Photographic Sciences Corporation

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

Technical and Bibliographic Notes/Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☐ Coloured covers/ Couverture de couleur
- ☐ Covers damaged/ Couverture endommagée
- ☐ Covers restored and/or laminated/ Couverture restaurée et/ou pelliculée
- ☐ Cover title missing/ Le titre de couverture manque
- ☐ Coloured maps/ Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black)/ Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations/ Planches et/ou illustrations en couleur
- ☐ Bound with other material/ Relié avec d'autres documents
- ☐ Tight binding may cause shadows or distortion along interior margin/ La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- ☐ Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/ Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- ☐ Additional comments:/ Commentaires supplémentaires:

- ☐ Coloured pages/ Pages de couleur
- ☐ Pages damaged/ Pages endommagées
- ☐ Pages restored and/or laminated/ Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- ☐ Pages detached/ Pages détachées
- ☑ Showthrough/ Transparence
- ☐ Quality of print varies/ Qualité inégale de l'impression
- ☐ Includes supplementary material/ Comprend du matériel supplémentaire
- ☐ Only edition available/ Seule édition disponible
- ☐ Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image/ Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
					✓						

The copy filmed here has been reproduced thanks to the generosity of:

Medical Library
McGill University
Montreal

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol → (meaning "CONTINUED"), or the symbol ▽ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:

L'exemplaire filmé fut reproduit grâce à la générosité de:

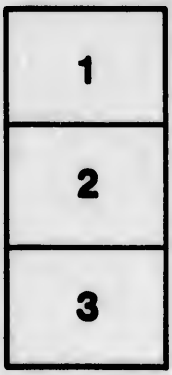
Medical Library
McGill University
Montreal

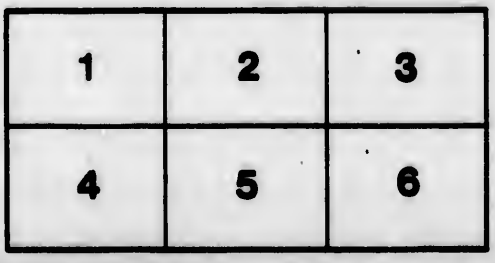
Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminant par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole → signifie "A SUIVRE", le symbole ▽ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.





On the dis

Adami, J. G.

[Extracted from the *Proceedings of the Cambridge Philosophical Society*, Vol. VII. Pt. IV.]

(1) *On the disturbances of the body temperature of the fowl which follow total extirpation of the fore-brain.* By J. GEORGE ADAMI, M.A., M.B. Christ's College, John Lucas Walker Student in Pathology. [From the Laboratory of M. Metchnikoff, Institut Pasteur.]

[*Abstract; received May* 8, 1891.]

In the course of a series of experiments, undertaken at Paris, upon the development of fever by means of aseptic solutions of the products of bacterial growth it became important to take into consideration how far the various phases of the febrile state depend upon the action of the higher nervous centres; to see whether a typical fever can be induced when the cerebral hemispheres have been removed, and to investigate the terms of relationship between 'the heat-centres' (if these have a local existence) and the altered conditions of heat production and the giving off of heat which obtain during the febrile state. These questions I do not propose to answer in the present paper, which is but of the nature of a preliminary communication.

I can here only state the results of certain first steps towards a resolution of the problems, and note the variations in the temperature of the body, as measured by the thermometer, during the days immediately following upon the removal of the cerebrum.

For these experiments I made use of the fowl. Mammals were out of the question for any prolonged observations, inasmuch as they cease to manifest any vitality whatsoever in the course of but a few hours after the hemispheres have been extirpated; and I employed the fowl rather than the pigeon (which otherwise has many advantages) because with the former it is the more easy under ordinary conditions to induce experimental fever.

In the a-volitional non-sentient state which follows removal of the cerebral hemispheres the fowl, it is well known, may continue for weeks, and it may be months. When however in addition to the hemispheres the optic lobes are to a greater or less extent extirpated, as was purposely the case in my experiments, then this state, it would seem, can last for a much shorter time, the bodily functions ceasing in from one to ten days according to the amount of obliteration of these organs that has been practised. Hence in these experiments it cannot be said that the stage of 'shock' following the operation has definitely been passed: it is impossible to declare that the variations in temperature which I am about to describe are not largely due to the highly irritable condition of the rest of the nervous system brought about by operative interference and removal of the higher centres.

Kept at an equable and moderate external temperature the ordinary fowl exhibits during the day a variation in the body temperature of at most 0·75° C., the mean temperature of well-fed fowls as measured in the rectum being—in winter—about 42·3° C. (108° F.). But after extirpation of the hemispheres and optic lobes—the latter wholly or partially—the temperature variations became very wide, passing from below 35° to above 45° C., and it was a matter of extreme difficulty to prevent, even for a few hours, well-marked ascents or descents of the temperature. Removal, therefore, of so large a portion of the brain had thoroughly disturbed the balance between the thermogenic and thermolytic powers of the organism.

So great had been the disturbance that now the fowls reacted to changes in the external temperature much in the same way as do cold-blooded animals. Placed in a room whose temperature was 22° C. (71·6° F.), and covered carefully with cotton wool the rectal temperature rose rapidly until in those instances in which the rise was unchecked it reached the height of 44·5° C. (112·0° F.) or more, in one case becoming as much as 45·325° C. (113·58° F.). Removal of the cotton wool checked the rise and

often induced an actual fall through more than a degree in the course of two hours. With an atmosphere slightly warmer (24° C.) no cotton wool was necessary to bring about an ascent. Transference to a room whose temperature was some degrees below 22° C. led to a rapid lowering of the point to which the mercury rose. Thus in one case, the fowl being placed in a room at 24° C. and covered with wool, the body temperature rose four degrees in five hours, from 40·2° to 44·2° C.; transferred to a room at 18° the animal shewed in less than three hours a fall through 5·6 degrees, to 38·6°; then replaced in the room at 24°, this time without a covering of wool, the temperature rose slowly but steadily until it reached 42·8° at the end of eight hours. I might adduce many other instances to the same effect.

Similarly, in animals whose fore-brain had been extirpated, 15 ccm. of cold water poured into the crop caused a fall of from half a degree to a degree during the course of the succeeding half-hour. This amount of cold water has no effect upon the body temperature of the normal fowl. On the other hand a rich proteid diet in the form of an egg, beaten up and warmed to nearly the temperature of the body, caused invariably a well-marked rise of one to three degrees beginning two to three hours after the animal had been fed. This rise reached its maximum in about six hours, and may be compared to the rise that has been found to occur in the crocodile and, I believe, the snake, after a large meal of animal food.

It may be noted here that while change to a cooler atmosphere caused lowering of the body temperature, this lowering, if the change had not been too considerable, tended to give place eventually to a slow rise. To this extent the reaction differs from what obtains in the cold-blooded animal, and despite the removal of the fore-brain there would seem to be a tendency for the body temperature to be brought back to the normal.

With the temperature liable to such great and constant fluctuations it was extremely difficult to determine the effects of injections of fever-producing substances, as, for example, sterilised bouillon in which the *Vibrio Metschnikovi* had been grown, or to know at what moment these might be made. Nevertheless in the two cases in which such injections were performed under what appeared to be favourable conditions there was so immediate and steady a rise of temperature through two degrees during the succeeding eight hours, that I am led to see in this rise an indication that febrile changes may be induced in the hen deprived of its hemispheres, and, if it be accepted that in the fore-brain lies the main heat regulating mechanism of the body, that febrile changes may be induced independently of this mechanism.