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THE NUMBER AND DISTRIBUTION
OF TRIALS IN LEARNING IN
THE WHITE RAT.

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THE NUMBER AND DISTRIBUTION OF TRIALS IN
LEARNING IN THE WHITE RAT.

The present study on the influence of the number and distribution of trials on learning in the white rat grew out of work already done along similar lines on human beings and out of the work on learning in animals along other lines. Ebbinghaus (1) in his pioneer work on nonsense syllables found that it was better to distribute the periods of learning over several days than to attempt all in one day. There was a saving of time and retention was better. The influence of the length and number of daily periods of learning has recently been further investigated by Pyle (2). He has shown that daily periods of half-hour practice in learning certain characters are, for most individuals, more profitable than longer periods. Again a second daily practice period "is not quite as beneficial as the first

practice". Apparently learning becomes easier when periods of practice are distributed over several days, rather than accumulated on a single day. No work similar to that of Ebbinghaus and of Pyle had been conducted on animals before this study of the white rat was undertaken, and the experiments embodied in these problems were completed before Pyle's work appeared.

THE PROBLEM.

The object of the work here reported was to determine whether the rat, in learning a single problem, learns more economically when making one trial or three or five trials per day, and also in learning two or three problems, whether it is more or less economical to learn one problem before beginning another, than to learn them concurrently.

APPARATUS.

Three different problems, involving the latch box, the maze and the inclined plane box, were used. The first two were employed once alone, and then in connection with

the inclined plane box. All three problems have been previously used in animal behavior, in similar or modified forms. None of them can be said to be difficult problems to learn.

The latch box (Fig.1) was a box frame about 28 cm. square and in the lower left hand corner of one side was a door, 15 cm. by 18 cm. The box, as well as the door, was covered with wire netting. A wooden latch was attached to the frame work of the box and this fitted in a notch on the door. Inside of the door was a light spiral spring which opened the door when the latch was released and also held the latch more firmly in its notch, as a result some pressure was required to push the latch upward. When the latch was raised the door would open, springing inward. The box was placed on a table. To avoid an undue amount of curiosity on the part of the rats, and, as far as possible, to re-establish conditions of cage life, the box was covered with a wire hood. One

side of the hood was hinged to the table to prevent shifting out of position. Opposite the hinged side and about ten inches from the door of the latch box was the entrance box of the hood.

The maze (Fig.2) was one not previously used in behavior work. The paths 11 c.m. wide, were arranged in concentric circles, separated from each other by vertical partitions of sheet aluminum, 15 c.m. high. These aluminum strips were set in grooves in a circular wooden base, 152 c.m. in diameter. Wire netting in two semi-circular sections covered the paths and an additional circular piece covered the center. The arrangement of the openings to adjoining paths, and the cul de sacs are rather difficult to describe. The placing of these can be better understood by consulting Fig.2. The distance from the entrance to the center of the maze, when following a direct line, was 37 c.m.

The inclined plane box (Fig.3), in general construct-

ion resembles the latch box with the exception that the latch was inside the box and was released in a different manner. A wire chain connected with the latch passed over two pulleys attached to opposite corners of the upper frame work inside the box, then through the mesh of the wire netting to an inclined plane behind the box. Thus a rat stepping on the plane would release the latch from the notch and the door would open inward. The plane was about seven inches long and three inches wide and was hinged to the top of the table on which the box rested. It was about 7 cm. behind the box and made an angle of about 15° with the table top when the door was closed. Like the latch box, the inclined plane box was covered with a wire hood.

METHODS OF EXPERIMENTATION.

Young white rats were used for experimentation. Usually, when thirty-five days old the mother and her litter were separated. When forty to forty-five days old

FIG. 1
LATCH BOX.

FIG II
MAZE

FIG. III.
INCLINED PLANE BOX

the rats were divided into groups of two or four, according to sex. At this age the simple environment of the cage had not become monotonous and sleep was not indulged in a greater part of the day. The rats were then excitable and extremely curious, which conditions were ideal for experimentation. The rats were taken at an age when far less complex activities have been ingrained than the ones they must make in solving the problems. Movements were demanded of the rats which were very different from those usually made in the narrow environment of the cage.

A greater part of the work was done in the same room in which the rats were kept, and, as far as practicable, in the morning hours, though sometimes extended into the afternoon. Towards the end of all experimentation the work was conducted chiefly in the afternoon. As soon as food was prepared for the rats, work was started immediately. No delay was permitted and the experiment was continued usually without interruption. This was

done because it was early noticed how eager the rats were to feed when the operator first entered the room and how this eagerness subsided after he had been present any length of time. This connection of the operator with the getting of food was seized upon as indicating a timely moment for work. Of course, when there were from five to ten groups of rats to work with, it was impossible to reach the last of them before this eagerness subsided, therefore a system of rotation in handling the groups was adopted, whereby the same group was not taken first every morning but every second or third morning. If the rats had been kept apart from the room in which the work took place, rotation would probably have been unnecessary.

The time for each trial was taken by a stop watch in minutes, seconds and half seconds. Later the seconds were converted into decimals of a minute. The time spent by the rats in nosing about in the entrance box was not considered, but from the moment when the rats entered the

maze or hood of the latch-box or inclined plane box. It was taken the entire period the rats remained in the hood or maze and up to the moment the problem was solved; that is, when the rats entered the center of the maze, or when the latch of the latch-box was raised, or when the plane of the inclined plane box was pushed down.

The next thing to consider is the incentive to activity. In all experimentation, food was used as a stimulus and consisted of a preparation of bread and milk. Besides this mixture grain and, occasionally, fruits were added. When food is properly controlled it becomes one of the best stimuli to arouse activities. Behavior under the desire for food or stimulation of hunger is in the nature of a normal life process. A mild degree of hunger gives tonicity to the muscles, and movements are sudden, numerous and active. In order to obtain the greatest activity, and not disturb general metabolism, particular attention must be paid to the kind as well as the amount

of food necessary. It was early seen how a healthy metabolism was needful to success in learning.

LATCH BOX.

The latch box was the first problem worked with. All that was necessary to solve the problem was to open the door of the box. The solution was accomplished by the rats, either by raising the latch with their snouts or by some more complicated method. The snout was usually the agent for entrance, though not always the first adopted.

In the beginning of the work on this problem it was thought necessary, when taking rats at forty days old, to give a few preliminary daily runs in a square maze of the Hampton Court type, before actual experimentation. This was only done to familiarize young rats to strange surroundings and to accustom them to being handled. This early preparation was continued in all the work with the latch box when used alone, but was given up as unnec-

essary with other problems. It was found that the rats were quite ready to solve any problem offered them without such preparation. They were active at all times and not unduly disturbed by the change in their environment. After the preliminary runs in the square maze, the rats were fed for two days in the problem box. They were then given for the first time the problem to solve.

At first the entrance box was taken to the cage in which the rats were confined and then a transfer was made to the hood, but this method was soon abandoned as it was found exceedingly difficult to tame the rats without some handling. An untrained and excitable rat became greatly disturbed when carried in a closed cage and it usually took several minutes before it calmed down. A new procedure was therefore adopted. A rat was carried by hand to the entrance box of the hood and then admitted to the hood surrounding the latch box. The rats were handled as little as possible and at no time were they

petted or coddled. When a rat was greatly excited or very timid, it was left a short time in the entrance box before it was permitted to enter the hood.

A group of rats was given one trial, another group three trials and a third group five trials a day. The rats having had one trial were permitted to feed for a short time in the problem box. They were then removed and fed in their own cages. The ones which had three or five trials were allowed, after each trial, to nibble food for a very short time before starting the next trial. At the end of all trials these rats, like those given one trial, were fed in the cages. No harm seems to have resulted from not feeding the rats entirely in the problem box. On the other hand, there was a material advantage, for a variety of food was given which would have been impossible if fed in the box alone.

Daily experimentation was continued until a group of rats reached a norm or average of one second in three

successive days. Thus for rats given one trial a day the average would be taken of three trials, others given three trials of nine trials and still others given five trials of fifteen trials. It was scarcely, if ever, a difficult norm to reach for many of the more active rats entered the box in one quarter to one half of a second and the less active ones close on to one second, or finally in one second. This norm cannot be considered low, but on the contrary a moderately high one, as the slowest rats found it rather difficult to reach. Rats would reach this norm in one second or less when they went directly to the door and lifted the latch with their snouts. Any unusual way of opening the door or habitually going around the box would increase the time considerably. For these cases the time varied from one second and a half to two seconds. The norm was then taken at two seconds. When either norm was reached learning was assumed to be complete. The rats were then held for retention, which test was taken after

an interval of sixty days. In the very beginning of this work, the rats were tested after thirty days, but retention seemed so perfect at the end of this time that the interval was increased to sixty days. In the meantime the rats were not left idle but were still fed once a day after being again allowed to run in the square maze to keep them in trim. They were even permitted to run about after feeding. Thus the evils arising from close confinement to cage life were in a measure avoided. Several days before the retention tests were made, the freedom of the maze was restricted and the rats put back in the cage as soon as hunger was satisfied. This was done in order to prevent overfeeding and to again accustom them to short diets. Just before a retention test was taken, the rats were run once through the square maze. The tests were taken for two days only and no attempt at relearning was made. All that was desired was to determine how persistent was the habit formed.

Behavior: As a rule, as soon as a rat entered the hood, it made directly for the door of the latch box, the more timid ones approaching more cautiously. Sometimes they ran around and over the box, but eventually tackled the door. All the rats were very active and rare was the case of indifference and utter helplessness. It was often a pleasure to watch their eagerness to get into the problem box for food. Usually this characteristic, in a high degree, was a correlate of the ability to learn. It was often noticed that movements were made which were far more complex than was necessary to solve the problem. Especially was this true when a solution to a problem was made in some unique way. The simple movement of raising the latch by the snout was all that was required to open the door. Seldom was it the case that a rat adopted this satisfactory and simple method from the very beginning and maintained it throughout learning. Some modification

of an early method was necessary and this took place as learning progressed. Often, however, a difficult method which had been learned seemed to persist, in spite of the fact that an easier and more convenient one could be learned. Such a difficult method prevailed for a time only, and then for some unaccountable reason, disappeared and the easier method of raising the latch with the snout was adopted.

The data obtained from experiments with the latch box are found in Tables I-a, I-b and I-c. Table I-a shows the number of trials each rat had in order to learn the problem when given one trial daily, Table I-b for three trials, and Table I-c for five trials. The time for each trial is given in minutes and decimals of a minute. The averages for each trial for all rats and also averages for males and females are found at the bottom of the tables. At the end of each table are the retention tests and their averages. It will be noticed that some rats were tested

for retention after an interval of thirty days, and others after sixty days. The averages of the rats which had an interval of sixty days are alone given. Besides this data, Tables I-b and I-c give in addition, for each rat, the number of trials as well as the number of days in which the problem was learned.

The most important fact to be noticed when examining these tables in succession, is that rats which were given one trial a day, required fewer trials than those given three or five trials, and that those given three trials fewer than those given five trials. It is just the reverse, seemingly, when taking into account the number of days as three and five trials required fewer days than one trial daily. On closer examination it will be seen that a few rats were trained somewhat beyond the time when they had reached the norm of one second or two seconds. This was done to obtain a satisfactory norm. Such a prolongation of trials was scarcely harmful to

results. It may have affected the retention tests but not materially. If anything of interest resulted it was the daily variations or fluctuations after learning was assumed to be complete. These were, at times, higher than the norm. Again the retention for some rats was as good as the last trial, but the averages for all the rats are higher than those of the last trials. It cannot be said that the retention is better for one than for three or five trials. Three trials seem to be the best of all. These results cannot be considered a true test of retention, for better methods of preparing the rats for the tests are necessary than those adopted, before something more definite can be determined.

The number of trials, or total time and days which each rat required before it learned the problem is indicated on the distribution curve, Plate I. Though the rats were run in groups and the norm was an average of one second in three successive days for all the rats in the

BY DAYS

PLATE I
DISTRIBUTION CURVE
LATCH BOX

MALES
FEMALES

groups, yet each rat eventually reached the norm at the time experimentation with each group stopped. Of course, some rats of a group finished learning sooner than others. Both the number of trials and days required to learn the problem are shown by small squares arranged on base lines. Males are indicated by plain squares, and females by squares with diagonal line in them. Those on the three base lines on the lower half of the plate show the number of trials for each individual rat when one, three or five trials were given. The upper half of the plate shows the number of days. The rats which finished learning the problem with a norm higher than one second are indicated by a circle within the blocks.

The curve helps in understanding at a glance individual differences. It will be seen that rats with one trial a day finished learning with fewer trials but usually more days than those required in three or more trials. In addition those given three trials required fewer trials

but more days than the rats given five trials a day.

What is significant in this statement is that when a rat is given one trial a day there is a saving in trials, and, on the other hand, when more trials are given there is usually a saving in the number of days.

Before taking up the particular curve which shows the growth in the organization of primal or impulsive movements in the learning of the latch box problem, it would be well to describe, at this stage, the structure of all curves of this sort. All are plotted on the same scale. The time taken is the average time of trials of all rats. A length of one-half m.m. on the abscissa represents one trial, and one-half m.m. on the ordinate represents for curves A and C .006 of a minute and curve B 0.2 of a minute. Both on the abscissa and the ordinate only every tenth trial or every tenth .006 or 0.2 of a minute are respectively indicated. The early trials are on a scale of 0.2 of a minute, and later trials .006 of

a minute. This division of ~~the~~ curves was found necessary because of the great height of the ordnant if they were constructed on a scale of .006 of a minute; and if constructed on a scale of 0.02 of a minute, variations from trial to trial would scarcely be noticable. When using the scale of .006 of a minute for later trials it was found feasible to use such denominations as .016 of a minute, and .008 of one-half of a minute.

Having described the construction of the curves, features characteristic of Curve I of the latch box can be pointed out. The most important feature is the greater length and irregularity of curves representing the three and five trials as compared with one trial. This irregularity is seen especially in the early trials and is due to the fact that a few more trials are required before the rapid descent in the curve takes place. When one trial a day is given, this descent occurs in the eighth trial and with three and five trials a day, in about the eleventh trial. Already in the early trials there is an

indication that a greater number of trials will be required before the problem is learned. A retardation in learning is apparently evident. Again the curve for one trial a day shows that little effort was required after the descent of the curve, before the learning was completed. On the other hand greater effort was required after the descent with the three and five trials. This is shown not alone in the greater length of this part of the curves but also their irregularity. This is not true of all individual rats, for some learned the problem sooner than others, and, of course, finished sooner, as is indicated by the rapid drop in the curves. A small circle on each of the curves indicates just when the first rat left off learning, and the curve first showing a circle is that plotted for one trial a day, the next for three trials and lastly for five trials. A possible cause for the greater number of trials indicated, when three and five trials

were given, will be discussed later.

The results obtained from these experiments show that one trial daily is the most economical in the way of trials. This demonstrated fact suggested further work on the latch box, and trials were given some rats every other day, and other rats every two days, that is, with two days intervening between successive trials.

This particular problem was conducted under the same conditions and with the same strain of rats as the preceding work. The days on which the rats were not required to solve the problem, they were allowed to run in the square maze to keep down body weight. This was not successful in every case, as some gained weight very rapidly but their activity was not noticeably effected. A more satisfactory group of rats could not have been secured than the ones used in the experiment. They were of an unusually hardy strain.

The data from this experiment was still more surpris-

ing than when one, three or five trials were given.

Tables I-d and I-e, when compared with Table I-a, show that still fewer trials were required to learn the problem, and of the two, I-d and I-e, the latter table indicates that a trial every two days is the more economical in the way of trials. In both cases, of course, a longer time elapsed before the problem was learned. The number of trials found necessary for the rats to learn the problem, when trials were given every other day and every two days, are also indicated in the tables and on the distribution curve, Plate II.

To the tables just described, some additional data has been made. About the time the rats were being experimented with for the additional problem on the latch box, Professor Donaldson, of Wistar Institute, suggested the value of having the spinal cord and brain weights of the rats in connection with each rat's record. The rats were sent, after the retention tests, to Wistar Institute and

PLATE II
DISTRIBUTION CURVE
LATCH BOX

BY TRIALS

MALES
FEMALES

this additional data taken. With this information, individual differences in the ability to learn can be compared with their brain weights. As it would be impracticable to correlate rats given one, three or five trials together, no special table for correlation was constructed. A table which is attached to the records of learning of the rats, is probably the most convenient that could be made.

There still remains to describe the curves representing the progress in the organization or integration of animal movements in learning the problem. These curves are found in Curve II of the latch box. They show similar peculiarities to the curves representing one, three and five trials. One trial is the longest and most irregular in the early trials. The next is that of trials every other day, and the shortest and simplest is that of trials every two days. Again relatively few trials were required of the latter after the rapid descent was made

and before learning was complete. A few more trials were necessary when trials were given every other day and every day. A small circular dot indicates where the first rat completed learning.

MAZE.

Though the maze was the last problem taken up, it is convenient to treat it at this point, for it is the only other problem taken alone. The plan of the maze has already been given and it differs in one important respect from the square maze in that it has no corners and only short turns from one path to another. For this reason it may be said to be an easier problem to learn. This plan of the maze had another advantage; towards the end of learning, the movements of the rats were confined to a quadrant of the maze and the observer could easily detect errors without changing his position.

As with the latch box the rats were divided into groups which were given one, three and five trials. The

norm taken for the learning of the maze was an average of six seconds in three successive days, and, in addition to this criterion, the runs had to be relatively free of error. No definite standard was taken for an error, but one was counted when a rat turned in the direction of a cul de sac or retraced its steps. Mere hesitation at any point was not considered an error. When error is adopted as an additional criterion it tends to become, in later trials, the sole standard, for the runs in the maze were made at one time without error in six seconds, and again with several errors in the same time. This is not because the standard of time is too high, for some rats can barely make an error-free run in six seconds. An active rat, on the other hand, may make the run in less than six seconds and have several errors to its credit. The norm established in this experiment was a run attained in six seconds and relatively free from error.

That it becomes necessary to take into account errors

to determine when the maze is learned was shown by types of movements in this experiment which were not noticable in learning the latch box problem. These must be eliminated before it can be said that the maze problem is solved. Running movements are chiefly in demand and such movements are far simpler than those involved in raising the latch of the latch box. Probably the most complex organized movements required in running the maze are those made in turning into another path quickly. As soon as these are integrated the time is materially lessened, for in nearly every case in learning the maze, speed was the first thing attained, the elimination of errors coming later. Errors were made as often when running in the paths as when turning from one path into another one.

They seem to have been made because of interfering stimuli of the sort which cause distractions. There must take place, in order that a run be error-free, a more consistent or fixed interaction of stimuli which bring

success. Seldom, if ever, is it the case that the organization of movements, which produce quick turns, and the proper interaction of stimuli work simultaneously in learning the maze. This is more usually the case when the Tatch box is learned. Here movements are organized and at the same time speed is acquired. Not until the interaction of stimuli which produce the right movements act properly will the run in the maze be free from error.

It is the dominance of the hunger stimulus which evokes movements from position to position while learning is in progress. Some deny that this stimulus acts in the early trials, however, the rats used in this experiment were seldom, as Carr (3) maintains in his work on the square maze, "governed by emotion and curiosity". In every case scarcely had the rats made a turn into the second path when they detected the odor of food and there was immediately an eagerness to obtain it, which was shown by increased activity of movements.

This activity, however, was decidedly sporadic. Hunger stimulus is intermittent in character, and it is probably most intermittent during the early trials because of the presence of numerous interfering stimuli, and then the rats may be said to be governed by curiosity.

RESULTS.

The results obtained from the work on the maze are not as satisfactory as those from the latent box. Some of the rats used in this experiment were not of the same strain as those previously experimented with. A few rats given three and five trials a day, were not perfectly normal. Their slowness of response throughout learning seemed to indicate a lack of vitality. Tables II-b and II-c show how these rats have affected the data obtained. Table II-a gives records of entirely normal rats. Even considering the records of the abnormal rats, one trial a day appears again to be the most economical in the way of trials, and five trials a day in re-

spect to days."

Both the distribution curve Plate III and Curve VI indicate clearly that not all perfectly normal rats were used when three and five trials were given. The number of days and the total time required by these rats is shown on the distribution curve. Those of three trials daily requiring 58, 78 and 89 trials, and of five trials requiring 150, 165 and 175 trials, before reaching the norm, must be considered abnormal. The average number of trials required for one, three and five trials daily when normal rats were used was for one trial 24, for three trials 40, and for five trials 56. These differences in the number of trials correspond more closely with the results of the latch box.

Likewise Curve VI shows, because of the presence of these abnormal rats, different points of interest. The general appearance of the individual curves is the same, however, those representing three and five trials being

Eight white rats & Morris maze

MAZE

TIME

MAZE

TIME

MAZE

TIME

MAZE

TIME

PLATE III

DISTRIBUTION CURVE
MAZE

TIME

MAZE

TIME

MAZE

TIME

MAZE

TIME

MAZE

TIME

MAZE

TIME

MAZE

unusually long and irregular. This irregularity is most pronounced in the early trials before the rapid descent in the curves is made, though it is prominent in the curve of five trials up to the 100th trial. The descent in the curve for five trials takes place in the 27th, for three trials in the 32nd, and for one trial in the 11th trial. Where there is slowness in descent and more or less irregularity, there exists a retardation in learning. Curve J shows that retention is best for five trials, and poorest for three trials, which is just the reverse in the retention test of the latch box.

Before leaving the discussion of the maze, it would be well to compare the results obtained from the latch box with those of the maze. In both cases learning when distributed over several days is apparently most economical. This particular point will be reserved for later discussion but it is of peculiar interest at this time to compare the courses of both. They all

have the same general character, a rapid descent takes place after a few trials and when a level is reached when the curves are prolonged to a greater or lesser extent. But they differ in that the individual curves of the one, three and five trials daily of the maze are much longer and more irregular than those of the latch box. This may be said even of one trial of the maze when perfectly normal rats were used. In all probability this difference is due to the maze being a more difficult problem to learn, though it is said to be one where more natural movements are made. The increase in length may be due to the fact that an additional criterion, error-free, has been added to that of time in determining the norm of the maze. It is certain that the rats would have required fewer trials and the curves, as a consequence would have been shorter if time alone had been considered. The length of the curve would then approximate that of the latch box, yet the irregularity in the curves would

still remain. ^

THREE PROBLEMS AT ONCE.

Since it was found that one trial daily, or at greater intervals when one problem was offered, was most economical in the number of trials, it was then suggested that three problems be given in succession, with one, three and five trials. The latch box, maze and inclined plane box were worked concurrently and always in the order named. With all three problems when one, three or five trials were given, a total of fifty-four rats were used. In the beginning, it was thought that the rats, which would have five trials daily for each problem, a total of fifteen trials for the three problems, could not stand the strain of so many successive trials, but this did not prove true. The rats stood the tests well from the very first and no indication of fatigue or apathy was at any time noticeable. The rats were a hardy strain similar to those employed with the latch box and were at all times

active and eager to obtain their food. In all probability, if rest between trials had been given, the results would have been different. Only sufficient time was given after each trial for a little food. This seemed necessary, and was the only change in the method of experimentation from that with the latch-box alone. For the experiments with the latch-box and maze similar norms were used, an average of one second in three successive days for the former, and six seconds without error for the latter. For the new problem, the inclined plane box the norm was two seconds. The rats had to work on all three problems until all three norms were reached.

RESULTS.

Behavior: As might be expected, fundamental differences in behavior were noticeable in learning the three problems together. Some rats found one problem more difficult than others. The most difficult one was the inclined plane box. Of interest, in this connection, was

a type of behavior in a problem when given with others, that was not noticeable when the problem alone was given. The latch-box afforded an interesting comparison in this respect. Many more random movements and unique ways in solving this problem were evident than when the same problem was offered alone. Some rats would go to the door, smell or touch the latch and go away, returning later to raise the latch with their snouts. Other rats would stand still before the door and move their heads to-and-fro before making the decisive movement which opened the door. At times there appeared to be a degree of helplessness. Most of these obstacles to learning were dropped suddenly and unexpectedly. Nothing very significant in behavior was noticeable in the rats, when in the maze, with the exception that fewer errors were made; the greatest difficulty was to obtain speed. Since the inclined plane box was not taken alone, but only with other problems, no comparison can be made of the movements.

A few points in regard to the learning of the inclined plane box problem are of interest. The movements of the rats were more complex than those demanded in learning the maze or latch-box. At first the plane was set off by the rats accidentally. Usually the noise of the opening of the door startled them, but gradually familiarity with the plane and the method of opening the door was established. This characteristic was first evident on the sixth or tenth day. At first movements were organized to push down the plane. Often when a rat had pushed the plane down, it would remain still for a time or wander off before going to the door of the box. There was no reaction to the noise of the door opening, and it appeared that an additional neural association of movements must be made before reaction could be immediate. When this had taken place, learning was rapid.

The records for the three problems, when learned in succession, are found on Tables III, IV and V, a, b and c

respectively. When comparing these tables in regard to the number of trials, it again can be said that rats, which had one trial daily, required fewer trials than rats given three or five trials. On the other hand, when given several trials daily, the rats required fewer days to learn the problems. This is an exact repetition of results obtained when problems were given singly.

The number of days and trials, that is, the total time and days required by each individual rat to learn the problems, are given on the distribution curves, Plates IV, V and VI. There is one feature noticeable on these curves that is not evident on previous distribution curves. Individual differences in the number of days and total time to learn the problems is more pronounced when several trials are given than when one is offered. Individual differences in ability to learn the problem is less evident when one trial is given. In addition, interesting comparisons might be made between Plates

DAYS

LATCHES WITH TWO OTHER PROBLEMS

References

FEMALES

TRIPOLI

1000
1000

10 DAYS

ONE
TRIAL

TWO
TRIALS

THREE
TRIALS

BY TRIALS

PLATE V

DISTRIBUTION CURVE

MADE WITH TWO OTHER FIVE DAY

MALES

FEMALES

ONE
TRIAL

TWO
TRIALS

FIVE
TRIALS

BY DAVIS

PLATE VI

DISTRIBUTION CURVE

AND FIELD PLAN, 1880-1881, 1882-1883, 1884-1885

1880-1881
Field plan

SECTION 5

1882-1883
Field plan

1884-1885
Field plan

1886-1887
Field plan

1888-1889
Field plan

IV and V of the maze and latch-box and Plates I and III of the same problems, when given alone. When these problems were undertaken in succession with the inclined plane box, more trials and days were usually necessary than when one problem was offered. However, in making this statement, the records of the abnormal rats, when the maze was used alone, have not been taken into consideration. The time and days, therefore, which it takes to learn the three problems is greater than when one problem is given. Learning is more difficult when problems are given concurrently than when one is given at a time. This can be seen better, perhaps, on the curves which show the growth of organized movements. Curves VII, VIII and IX are the same in general contour. The individual curves for one and three and five trials show differences in length and regularity. Again, curves representing three and five trials are more irregular than those of one trial. This is true especially of the early trials

CURVE X
MAZE

— USE FINAL
— USE INITIAL
— USE INITIAL
— WITH OTHER PROBLEMS

before the rapid descent in the curves is made. After this the curves are more regular.

Besides this general appearance of the curves, there are some individual differences in the curves of the latch-box, maze and inclined plane box which are worthy of notice. The most irregular ones are those of the inclined plane box and the maze. This is also true of the individual curves representing one, three and five daily trials. This irregularity is again more pronounced in the early trials and is an indication that the problems are more difficult than that of the latch-box. The inclined plane box is the most complex and this condition is probably due to the neural associations which must be formed. Additional indication of this is seen in the number of trials required before the drop in the curves takes place. More such trials are necessary in the problems of the maze and inclined plane box than of the latch-box. This and the additional fact that learning is increasingly

more difficult when problems are learned abreast, is represented by Curves VII, VIII and IX. The individual curves of the latch-box, when one, three and five trials were given with one or more problems, are represented on the curves. It is evident in each case that when one problem is given the curves are shorter and simpler. The same thing may be said of Curve X of the maze. This might be expected when consideration is given the fact that three sets of organized movements or intergrations must be learned simultaneously when solving the problems.

SUMMARY.

The results obtained from all the experiments of this study point to the conclusion that a trial given every two days is most economical as regards the number of trials. In other words, when learning is distributed over several days and not accumulated in one day, the total time of learning is the shortest. In all probability, such distribution of trials is physiologically

the most effective in the learning process, for it is apparent that less energy is consumed. Furthermore, one trial given daily, though not so profitable in learning as a trial given at greater intervals, remains more economical and effective than when several trials are given in succession. The further conclusion may be reached that, if several problems are given concurrently, fewer trials are necessary to learn them than if one problem had been learned completely before another had been undertaken. But it has been shown, when comparing the curves of several problems with those of one problem, that the former are more irregular and learning is more difficult.

On the other hand, when several trials are given, fewer days are required to learn a problem or problems. The most economical in the number of days is when one problem, with several daily trials, is given. Although there is a saving in the number of days, learning is increasingly difficult when several trials are given as

has been shown by the irregularity of the curves and also in the number of the trials.

As a result the question arises as to the comparative value of a saving of days or a saving of trials. This can be answered by considering the amount of energy consumed and the span of life of the rat. If several trials are given and energy is too freely used, one trial is the most economical; but, if this is not the case and no harmful results are evident, then several trials daily are the most advantageous in the number of days, and the number of days is of some importance when the short life of the rat is considered. If, in the life-time of the rat, several problems are to be learned, it is almost necessary to give several trials daily. This has additional weight when it is considered that the youth of the rat, when learning is best accomplished, is very short. The conclusion can be reached that, if the life of the rat is to be a strenuous one, several trials are more profitable,

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but one trial a day or at greater intervals will always prove to be the most economical in the total time required for learning a problem.

THE ORGANIZATION OF MOVEMENTS.

The rats are endowed with a physiological disposition to repeat movements, both native and acquired. Many of those which the rats make when confronted with a new situation or problem are more-or-less impulsive and primal in nature. In a solution of a problem these primal movements are organized. The problem is then learned. It has been said that the learning process consists of the "mechanical stamping out" of the useless movements and the "mechanical stamping in" of the useful ones. There have been some objections to this supposition as to the method of learning among animals. The general objection, as raised by Hobhouse (4), is that it precludes intelligence. Since this paper will not touch upon the question of the presence or absence of intelligent activities,

but only upon the objective manifestations of organization of movements, the subject will not be considered further.

There is an additional objection to this so called "trial and error" method of learning in that it is an extremely vague way of expressing what really takes place in an animal with an organized nervous system. To speak of useless movements being "stamped out" and useful ones "stamped in" gives at once the impression that the first are irrelevant and of no practical value, and that the second are alone of value in learning. That a stimulus evokes an orderly series of reactions has been shown by Sherrington (5), according to whom "the nervous system functions as a whole. Physiological and histological analysis finds it connected throughout its whole extent". A new situation brings numerous integrations into action. A reduction and a facilitation of some of these movements which the new situation demands is what takes place in

the organization of movements. Learning may said to be due to a facilitation of selected responses. There is no movement which can be said to be truly useless. Their mechanism has been evolved and their true value is lost when once they are classed as useless.

The process of organization of movements shows certain objective manifestations. It may be said to consist of the animal passing from an inexcitable state to an excitable one when a problem is undertaken, and, then, as soon as progress is made in the organization of movements, a disappearance of the excitable states occurs. This excitable state when the animal is first given the problem, is the emotional one so often mentioned. According to Dewey (6), it is the time when energy is provided and adjustments fostered. This has been recently substantiated by Cannon (7) on the work of the function of adrenal secretions during emotional or excitable states. It seems that adrenalin in the blood increases the

the efficiency of skeletal muscles directly, or by increasing the blood pressure and thereby bettering the circulation. Concomitant with adrenalin secretions glycosuria also takes place. There seems to be a chemical integration whereby sugar would supply energy and adrenalin would obviate fatigue in the muscles by improving the circulation. The ability of the rats to continue prolonged effort during the excitable state can thus, in a measure, be accounted for, as can also the numerous movements made. There are metabolic changes in the organism which tend to foster the latter.

The early irregularities of the curves before the rapid descent takes place can be accounted for as representing the entire process of early organization of movements. It is the time when there is a reduction of some movements and the facilitation of others. The "steeple like" character of the curves shows how difficult the organization must be. As soon as the early movements

are partially organized, the more important antagonistic muscles function, and the excitable state, to a great extent, disappears. This is represented by the rapid drop in the curve. With the more excitable rats, there is an absence of the reflex convulsions of the body musculature. There is a little more ease and comfort and no clashing between opposing activities of different parts of the body. From this stage learning or the progress of the organization of movements will take place more smoothly and the curves become more regular. The stimulus hunger now dominates over the action of the body as a whole. When this has taken place, learning is said to be complete.

There are some differences in the course of events outlined above. Occasionally organization of movements was scarcely prolonged beyond the point graphically represented by the rapid descent in the curves. Especially was this the case at points of the curve showing when the first rat left off learning. Again when a problem is

relatively easy, or trials are given at greater intervals, as is indicated by Curve II, there is little of the irregular and steeple-like character to the curves; the descent of the curves is rapid. On the other hand, when the problem is difficult or several trials were given, the curves are more complex and irregular. There is some difficulty in forming early organized movements.

RETENTION.

Very little has been said regarding the retention characteristics of the rats. No definite conclusions have been reached in regard to the distribution and the number of trials on retention, for the results do not indicate whether retention is better after one, three or five trials when one problem was offered. In some cases one trial showed the best retention, and again three or five proved more effective. This might be accounted for by individual differences in the power of retention. The same doubt exists when three problems were given at least,

as to whether one, three or five trials were most beneficial in retention. But the retention tests, when three problems were given abreast, seem to show that they are not as good as when one problem is given. This is the most interesting data obtained in these tests, other than the fact that relearning is much easier than learning.

The results are not conclusive. What is needed for retention tests are better systematic methods of preparation after learning is complete. The length of the period of preparation should be determined and more attention paid to daily exercise, diet and disturbing influences which might affect retention tests. The principal disturbance noticed was that aroused by odors. It is an old obstacle often appearing in the work of learning, and how to control it is a difficult matter. The first trial of retention is often prolonged because of the detection of a new odor. Daily exercise and

diet are more easy to control, though even here, especially in the diet, difficulties are found. One rat may gain fat very rapidly on a small quantity of simple food such as bread and milk, whereas other rats will require a variety of food. Therefore, before anything can be concluded from the effects of the number of trials on learning, better methods must be devised for measuring retention. But something must be said of the retention of organized or integrated movements. These were often as perfect as when learning was completed. A slowness of action was alone evident in the movements, but usually when an initial start was made speed was regained. When, in lifting the latch of the latch-box, a rat would hold its snout for a short time close under the latch before making a movement upward to release it from the notch. With the inclined plane box, there was occasionally a hesitation in pushing down the plane, and successive attempts were made before this was finally accomplished.

Even when this took place a rat would not immediately respond to the noise of the opening of the door and rush to the food. In the case of the maze, there was an increase in the time of the runs and a recurrence of errors.

CONDITIONS INFLUENCING LEARNING.

Learning is dependent upon many influences, both internal and external. Internal influences usually defy analysis, but the external ones can be more easily detected. When a response out of the ordinary is noticed some cause is looked for. Most of the external disturbances, such as noises and great variations in temperature, can be avoided. When ideal conditions prevail irregular responses diminish, and, since learning is dependent upon the effectiveness of every previous response, every arrangement to avoid disturbances ought to be considered.

But these external disturbances are much less important for successful progress in learning than the control of the stimulus which produces the responses. Especially

is this true that hunger is a stimulus. When this is properly controlled, it is one of the best for evoking responses. Too little or too much food defeats results desired. It is a great mistake to reduce the amount of the food in order to increase the activity of the animal. This is especially harmful in the early trials when primal movements are made and their organization is taking place. The animal may miss making a favorable movement that it might have made if there had been better bodily tone. Oftentimes, it appears, that it is the control of the amount of food which hastens learning. When attention is paid to food regulation a maximum of effort is obtained without disturbance to metabolism.

Because of the disturbances to metabolism and the supposed unnaturalness of hunger as a stimulus, objections have been raised against it, and punishment or some other stimulus has been preferred. This objection is not well founded. Of all the stimuli used, hunger seems

to give the greatest tonicity to the muscles and the movements are far more natural than those evoked by punishment or any other stimulus. Any stronger stimulus than hunger, such as punishment, has an unfavorable effect on the animal. A stimulus, as an electric shock, has a decided effect on antagonistic muscles; there is an inhibition of these muscles and since these play an important role in the process of the organization of movements the learning process must be interfered with. Harmful results in the long run must ensue. Learning, no doubt, does take place, but not naturally. No better evidence for this statement can be had than that any strong stimulus, as it is usually found necessary to employ, causes a spread or irradiation of reflexes and movements, which are unnecessary to learning. Punishment appears to be far from being as natural a stimulus as hunger.

That one trial, daily, or at longer intervals, consumes less time, and, as a consequence, less energy, is of some physiological interest. One might argue that after the first trial and the rat had a little food, the second trial would heighten the tendency to the same movements which, in the first trial, proved useful, and this tendency would be more beneficial in all succeeding trials up to a point when the animal becomes slightly fatigued. The effect of one trial would be to diminish the resistance so that the second trial would evoke responses more easily. There would take place a process of summation, and facilitation or "Bahnung" would be accomplished. This is, when all things are equal, a regular process in the functioning of reflexes. But this does not seem to be the case when several trials are offered in succession. Trials distributed over several days consume less time and less energy.

No observable difference in the responses evoked by each trial, when several trials were given in succession, was recognized. It cannot be said that the rat was less active in the last of the succeeding trials. Frequently the last of three and five trials was accomplished in a shorter time than the ones preceding. The changes which must take place cannot be detected by observation of the animal's behavior; they are evidently physiological. Probably when the time between trials is of such a length that the physiological state created by the preceding one is permitted to "set", so to say, before the next one is given, every trial is effective. Learning is dependent upon every successful and effective trial. If several trials are given in succession, only the physiological state created by the first trial is of advantage in learning, the others do not, to any great extent, reinstate the conditions of the first trial; time must intervene between trials so that the physiological state of the

second will reinforce or reinstate the first.

At one time we thought that the hunger stimulus had something to do with the greater number of trials necessary to learning, when several were given daily, but this stimulus has possibly only an indirect effect. There might arise, because of unsatisfied hunger after the first trial, bodily disturbances which would interfere with the proper functioning of right reactions and would make the second or succeeding trials ineffective. A flow of gastric or salivary secretions would produce a loss in bodily tone. Moreover, we must remember that a stimulus when repeated, oftentimes produces depressions, and not always reactions when the tone is not too best.

CONCLUSION.

The more important results obtained from this study can be summed up in a few words.

When food is used as a stimulus it is important for successful learning that the kind as well as the amount

be properly regulated. This was found to be a very important thing throughout learning, and especially was this true in the early trials when learning is laborious and there is a change in the amount as well as in the periodicity of feeding.

The experiments show that a trial given every two days, is more economical than more frequent trials, that is, when the number of trials is distributed over several days the total time required for learning is the shortest.

Again one trial given daily with either one problem or several in succession, is decidedly more economical than when several are given daily. And it is better to give one problem at a time than several at a time.

When several trials are given daily with one or more problems fewer days are required to learn either one or several problems.

From the above, when considering the total time and energy consumed, learning distributed over several

days is the most economical.

TABLE I. HATCH BOX ONE TRIAL.

Males													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
9.55	1.32	.175	.150	.133	.083	.033	.016	.024	.041	.033	.041	.066	.033
45.0	4.12	4.00	.333	.050	.050	.024	.083	.028	.024	.016	.033	.041	.008
1	2	3	4	5	6	7	8	9	10	11	12	13	14
4.50	3.66	1.83	.088	.333	.066	.033	.066	.033	.016	.022	.016	.033	.100
350	3.58	.250	.050	.058	.016	.056	.024	.016	.016	.016	.024	.016	.016
1	2	3	4	5	6	7	8	9	10	11	12	13	14
.350	15.0	.124	.050	.116	.033	.033	.016	.016	.066	.024	.016	.008	.008
2	10.0	.100	.050	.050	.033	.041	.016	.024	.016	.008	.074	.008	.016
1	2	3	4	5	6	7	8	9	10	11	12	13	14
.716	.300	.166	.183	.200	.100	.200	.124	.083	.033	.058	.024	.016	.066
4.71	10.2	.333	.266	.250	.024	.134	.016	.083	.016	.024	.024	.024	.016
Females													
1	2	3	4	5	6	7	8	9	10	11	12	13	14
6.16	.950	.233	.283	.158	.033	.066	.250	.066	.041	.066	.041	.024	.016
7.45	13.6	7.33	1.13	7.56	8.25	.350	.291	.183	.183	.183	.108	.083	.116
1	2	3	4	5	6	7	8	9	10	11	12	13	14
.300	.158	.300	.124	.183	.883	.020	.050	.016	.016	.033	.033	.050	.024
.083	.083	.133	.024	.058	.100	.041	.033	.074	.041	.033	.150	.033	.033
3	10.2	.101	.066	.024	.174	.016	.050	.024	.016	.012	.016	.016	.008
1	2	3	4	5	6	7	8	9	10	11	12	13	14
3.46	22.4	.125	.433	.483	.124	.024	.150	.058	.166	.016	.016	.008	.008
1	2	3	4	5	6	7	8	9	10	11	12	13	14
.700	1.18	.084	.100	.034	.024	.024	.016	.016	.033	.041	.016	.016	.016
3	16.0	.500	.150	.050	.133	.316	.020	.016	.024	.016	.016	.016	.016
Averages													
17	5.37	8.99	1.16	.244	.574	.601	.085	.059	.064	.044	.036	.045	.028
9	8.40	10.8	1.21	.200	.135	.056	.065	.042	.060	.027	.024	.042	.027
8	4.05	6.93	1.09	.290	1.06	1.21	.107	.081	.070	.065	.050	.049	.030

Retention.

	15	16	17	18	19	20	21	22	23	24		1	2	*
1	.033	.041	.033	.016	.024	.033	.008	.016	.008			.008	.008	*
2	.013	.008	.050	.024	.016	.033	.016	.008	.024			.030	.024	*
1	.016	.024	.008	.016	.012	.012						.017	.016	
2	.020	.020	.020	.016	.024	.008						.041	.050	
3	.066	.013	.013	.008	.012	.004						.074	.016	
												.583	.024	
												.024	.016	
1	.033	.033	.033									.033	.016	
2	.016	.016	.016									.033	.033	
1	.016	.041	.083	.141	.024	.033	.016	.016	.008			.066	.013	*
2	.050	.041	.066	.074	.100	.024	.016	.016	.008			.033	.016	
1	.016	.024	.013	.008	.016	.024	.008	.016	.008	.016		.083	.024	
2	.100	.024	.024	.033	.033	.033	.024	.024	.033	.033		.050	.074	
3	.150	.016	.008	.008	.008	.012	.008	.024	.013	.008		.033	.016	
												.041	.024	
												.416	.083	
												.041	.041	
17	.044	.025	.031	.034	.026	.021	.013	.017	.015	.019		.097	.020	
9	.022	.022	.025	.016	.017	.018	.012	.012	.016			.086	.024	
8	.066	.029	.039	.052	.036	.025	.014	.019	.014	.019		.110	.037	

*Thirty Days.

TABLE 1b LATCH BOX THREE TRIALS.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Males		1 2 1 2 3	9.20 1.93 14.0 8.23	.166 6.38 .800 .233	.400 .650 .241 .241	1.56 .071 7.18 7.41	.266 .141 12.0 .208	.033 .108 3.71 .033	.083 .033 1.66 .024	.016 .083 .083 .024	.024 .083 .083 .016	.041 .016 .083 .024	.050 .083 .024 .020	.016 .073 .033 .016	.016 .033 .024 .191
Females		1 2 1 2	.416 3.56 30. 3.11	9.00 .833 .833 6.41	1.08 .483 19.0 .566	.033 .133 .250 .083	.100 .300 .050 .033	.050 .091 .133 .066	.024 .024 .033 .016	.066 .024 .024 .033	.024 .208 .024 .016	.016 .016 .024 .016	.012 .024 .024 .016	.133 .066 .066 .083	.016 .016 .166 .050
Averages		11 5 6	9.22 8.34 9.81	2.61 1.89 3.10	1.61 3.83 2.43	1.09 2.06 2.91	1.26 2.52 .202	.440 .793 .153	.212 .364 .085	.069 .072 .066	.051 .046 .056	.044 .054 .036	.050 .082 .022	.049 .022 .071	.052 .057 .048

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.024	.216	.116	.016	.016	.033	.016	.016	.033	.016	.008	.016	.016	.008
2	.050	.050	.033	.024	.016	.008	.033	.016	.024	.008	.008	.016	.024	.016
1	.016	.015	.016	.016	.016	.016	.016	.016	.016	.016	.016	.012	.008	.008
2	.024	.024	.016	.016	.016	.016	.016	.024	.083	.008	.016	.016	.016	.016
3	.016	.024	.133	.016	.016	.016	.100	.016	.008	.066	.033	.016	.016	.016
1														
2														
1	.012	.016	.016	.008	.008	.008	.008	.050	.008	.008	.012	.008	.016	.012
2	.024	.024	.016	.016	.024	.016	.158	.008	.008	.008	.016	.012	.016	.008
1	.050	.024	.033	.008	.016	.016	.008	.024	.008	.004				
2	.050	.024	.016	.016	.016	.008	.008	.016	.008	.024				
1	.058	.033	.024	.016	.024	.024	.016	.016	.016	.016	.016	.016	.016	.016
2	.041	.024	.050	.041	.033	.016	.016	.008	.008	.008	.012	.008	.008	.008
1														
11	.033	.043	.042	.017	.018	.016	.035	.019	.020	.016	.015	.013	.015	.012
5	.026	.066	.062	.017	.016	.017	.036	.017	.032	.022	.016	.015	.016	.012
6	.039	.024	.025	.017	.020	.014	.035	.020	.009	.011	.014	.011	.014	.011

Retention

	43	44	45		1	2	3	4	5	6	7	8	9	10
1	.008	.016	.024		.033	.016	.083	.016	.016	.024				
2	.008	.008	.012		.016	.016	.004	.016	.016	.008				
							Thirty Days							
					.016	.016	.008	.016	.008	.008				
					.020	.008	.008	.008	.008	.008				
					.012	.008	.008	.033	.008	.016				
					.016	.008	.050	.008	.008	.008				
					.016	.016	.024	.024	.016	.016				
					.050	.012	.008	.008	.008	.008				
					.033	.058	.008	.008	.008	.016				
					.016	.012	.012	.016	.016	.008				
					.017	.016	.016	.016	.016	.008				
11	.008	.012	.018		.021	.017	.015	.015	.009	.010				
5	.008	.012	.018		.016	.010	.008	.019	.008	.010				
					.024	.020	.019	.013	.010	.010				

TABLE I-c LATCH BOX FIVE TRIALS.

[illegible]

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.033	.008	.008	.008	.016	.008	.016	.100	.008	.074	.041	.024	.016	.016
2	.216	.066	.016	.166	.116	.083	.016	.008	.024	.124	.050	.008	.008	.016
1	.016	.016	.024	.016	.016	.533	.016	.024	.158	.016	.041	.016	.016	.024
2	.033	.033	.024	.016	.016	.100	.016	.008	.008	.008	.004	.012	.016	.016
1	.016	.016	.024	.016	.016	.533	.016	.024	.016	.150	.024	.016	.016	.024
2	.033	.100	.033	.024	.016	.016	.016	.008	.008	.008	.004	.012	.016	.016
1	.033													
2														
1	.033	.008	.016	.083	.016	.083	.183	.041	.200	.016	.024	.041	.024	.050
2	.024	.066	.066	.024	.016	.233	.024	.150	.150	.033	.083	.016	.233	.100
1	.016	.016	.024	.008	.016	.016	.024	.024	.016	.016	.016	.016	.016	.024
2	.012	.008	.024	.091	.050	.016	.016	.016	.016	.016	.016	.008	.008	.016
3	.033	.008	.050	.033	.033	.016	.008	.016	.024	.024	.024	.016	.016	.024
11	.042	.031	.028	.044	.029	.148	.031	.038	.057	.044	.030	.016	.035	.029
6	.057	.039	.021	.041	.032	.212	.016	.028	.037	.063	.029	.014	.014	.018
5	.023	.021	.036	.047	.026	.072	.051	.049	.081	.021	.032	.019	.059	.042

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.016	.008	.033	.016	.008	.024	.008	.050	.016	.008	.016	.008	.008	.016
2	.024	.016	.008	.033	.008	.008	.016	.008	.008	.008	.008	.008	.008	.008
1	.041	.133	.008	.008	.008	.008	.050	.008	.008	.008	.024	.016		
2	.012	.012	.008	.008	.008	.016	.016	.008	.008	.004	.004	.004		
1	.041	.133	.083	.224	.008	.016	.016	.016	.024	.012	.024	.008	.008	.024
2	.012	.012	.016	.012	.012	.008	.008	.016	.008	.008	.008	.016	.008	.008
1	.041	.024	.016	.016	.016	.016	.016	.016	.008	.016	.016	.012	.050	.016
2	.433	.083	.016	.050	.033	.041	.016	.008	.024	.024	.016	.016	.016	.016
1	.016	.008	.008	.008	.008	.008	.008							
2	.004	.008	.016	.008	.008	.008	.008							
3	.024	.016	.008	.008	.008	.008	.008							
11	.060	.041	.020	.035	.011	.014	.015	.016	.010	.011	.014	.011	.016	.014
6	.024	.052	.026	.050	.008	.013	.019	.017	.012	.008	.014	.010	.008	.014
5	.103	.027	.012	.018	.014	.016	.011	.012	.016	.020	.016	.014	.033	.016

	43	44	45	46	47	48	49	50						
1	.008	.008	.016											
2	.016	.008	.024											
1	.008	.016	.024	.008	.008	.016	.008	.016						
2	.008	.016	.008	.008	.008	.008	.016	.016						
1	.016	.008	.008	.016	.016	.008	.008	.024						
2	.008	.008	.016	.008	.008	.008	.008	.012						
11	.010	.010	.016	.010	.010	.010	.010	.017						
6	.010	.012	.018	.008	.008	.012	.012	.016						
5	.012	.008	.012	.012	.012	.008	.008	.018						

Retention

	1	2	3	4	5	6	7	8	9	10				
1	.016	.016	.016	.016	.016	.016	.024	.024	.008	.008				
2	.024	.024	.024	.012	.016	.016	.016	.016	.083	.016				
1	.024	.024	.024	.050	.033	.016	.166	.016	.083	.017				
2	.024	.012	.024	.050	.016	.008	.008	.008	.008	.008				
1	.024	.008	.024	.050	.033	.016	.016	.016	.008	.024				
2	.024	.583	.024	.050	.016	.008	.008	.008	.008	.008				
1	.033	.012	.008	.016	.083	.050	.008	.016	.050	.500				
2	.058	.008	.016	.008	.016	.016	.008	.016	.033	.200				
1	.033	.016	.316	.083	.016	.008	.016	.008	.008	.012				
2	.350	.016	.016	.016	.016	.016	.008	.004	.008	.058				
3	.683	.016	.016	.016	.016	.016	.016	.016	.016	.024				
11	.117	.066	.046	.033	.025	.016	.040	.013	.028	.079				
6	.022	.111	.022	.038	.021	.013	.064	.014	.033	.013				
5	.231	.013	.074	.027	.029	.021	.011	.012	.023	.158				

TABLE I-d LATCH BOX EVERY OTHER DAY.

Averages	Males													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	28.3	4.50	.333	.416	.500	.100	.050	.166	.033	.038	.024	.016	.016	.016
	30.6	1.63	1.75	.016	.118	.100	.886	.033	.016	.024		.016	.008	.012
	1	.766	.241	.124	.250	.066	.083	.016	.016	.008	.016	.016	.016	.008
	2	10.8	1.50	.216	.133	.116	.083	.100	.062	.058	.100	.024	.016	.041
	1	.750	.500	.016	.500	.058	.033	.024	.050	.041	.016	.016	.016	
	2	.200	.550	.083	.024	.024	.033	.024	.050	.050	.016	.008	.016	
	1	.583	1.08	.783	.233	.150	.033	.016	.016	.024	.016	.008	.016	.008
	2	.166	.433		.500	.330	.066	.033	.033	.050	.033	.033	.050	.008
	1	1.11	.500	.141	.166	.008	.033	.016	.016	.008	.083	.050	.033	.008
	2	7.33	1.86	1.50	1.25	.266	.033	.033	.033	.033	.150	.016	.024	.041
	3	30.3	1.83	.416	.220	.166	.083	.116	.108	.024	.024	.024	.016	.033
	1	.200	1.06	.783	.208	.350	.083	.033	.016	.016	.008	.008	.008	.008
	2	.216	.124	.333	.016	.024	.016	.016	.016	.024	.066	.016	.008	.008
	13	8.38	1.93	.663	.250	.215	.078	.107	.035	.032	.046	.019	.018	.017
	8	8.77	2.47	.680	.170	.248	.108	.150	.034	.039	.031	.017	.019	.015
	5	7.83	1.07	.634	.370	.162	.031	.039	.037	.021	.066	.022	.017	.019

Retention

	15	16	17	18	19	20	21	22	1	2		
									.633	.050		
									.033	.066		
1	.008	.008	.008	.008	.008	.008	.016	.016	.020	.016		
2	.050	.041	.024	.041	.024	.016	.016	.016	.024	.024		
									.166	.166		
									.916	.016		
1	.016	.016							.024	.008		
2	.016	.016							.100	.016		
1	.024	.028	.033	.033	.050	.033			.016	.016		
2	.083	.012	.016	.016	.008	.008			.084	.033		
3	.016	.016	.016	.016	.008	.008			.033	.024		
									.024	.016		
									.583	.016		
13	.030	.019	.019	.022	.019	.014	.016	.016	.204	.033		
8	.022	.020	.016	.024	.016	.012	.016	.016	.239	.033		
5	.041	.018	.021	.021	.022	.016			.147	.021		

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain $\frac{W}{H}$	Cord $\frac{W}{H}$	Body Length	Tail Length	Age
14	14	1.5759	.1250	112.7	78.443	72.094	170	131	148
14	14	1.4990	.4052	104.9	78.538	72.285	163	127	148
9	9	1.6015	.4290	124.8	78.301	71.670	166	135	148
22	22	1.4659	.3829	74.5	78.108	71.820	148	119	148
13	13	1.9267	.5248	199.8	78.030	70.102	191	155	145
13	13	1.7634	.5119	141.1	78.394	71.147	183	151	145
12	12	2.0633	.6055	234.4	78.374	71.824	211	169	144
16	16	1.8730	.5410	190.7	78.660	72.366	189	156	144
20	20	1.5577	.3977	100.	78.410	71.787	158	127	148
18	18	1.4975	.3760	92.6	78.517	72.287	153	117	148
17	17	1.6642	.4250	114.2	78.476	71.788	164	138	148
11	11	1.7824	.4820	151.1	78.742	72.323	175	150	144
14	14	1.7776	.5263	147.4	78.454	72.107	179	153	144
		1.6960	.4640	137.5	78.419	71.816	173	140	146
		1.7210	.4781	147.8	78.356	71.664	181	142	146
		1.6558	.4414	121.0	78.519	72.058	165	137	146

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain %H ₂ O	Cord %H ₂ O	Body Length	Tail Length	Age
13	13	1.7914	.5184	155.9	78.335	72.048	180	149	145
13	13	1.9192	.5469	180.1	78.277	71.110	195	158	145
11	11	1.8665	.5213	175.7	78.253	71.398	189	154	145
17	17	1.8610	.5002	187.3	78.216	71.251	193	148	157
12	12	1.7952	.5274	185.0	78.364	71.236	195	150	157
9	9	1.7601	.4836	146.2	78.529	72.043	183	147	144
15	15	1.7751	.4821	148.8	78.682	72.101	177	151	144
11	11	1.9099	.4911	142.1	77.889	70.780	179	158	157
11	11	1.7378	.4776	140.9	78.046	71.105	174	146	157
		1.8240	.5054	162.4	74.954	71.452	185	151	150
		1.8466	.5228	176.8	72.289	71.408	190	151	149
		1.7957	.4836	144.5	78.286	71.507	178	150	150

TABLE II-2 MAZE ONE TRIAL.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Males														
1	2.21	.383	1.43	.266	.183	.158	.108	.091	.083	.100	.085	.091	.083	.083
2	1.05	3.75	.533	.700	.400	.233	.124	.100	.216	.150	.100	.083	.083	.133
1	6.03	3.65	1.51	.750	3.20	.200	1.25	.366	.200	.233	.200	.166	.216	.100
2	8.10	1.13	2.18	.933	.583	.733	.200	.200	.400	.266	.150	.116	.100	.266
Females														
1	2.50	7.75	.963	1.00	2.23	.583	.583	.266	.216	.316	.133	.100	.083	.124
2	2.00	3.50	4.83	3.13	2.08	1.82	1.31	.416	.466	.583	.216	.100	.266	.166
1	15.1	10.0	2.85	.566	.966	.250	.183	.274	.216	.108	.183	.150	.083	.116
2	35.7	.683	.633	.733	6.00	.824	.466	.233	.316	.158	.100	.083	.091	.133
Averages														
8	9.09	3.86	1.86	1.01	1.95	.600	.387	.243	.264	.239	.145	.111	.125	.140
4	4.34	2.22	1.41	.662	1.09	.331	.420	.189	.224	.187	.133	.114	.120	.145
4	13.8	5.50	2.32	1.35	2.81	.869	.635	.297	.303	.291	.158	.108	.130	.134

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.108	.124	.133	.133	.100	.091								
2	.100	.116	.100	.083	.083	.083								
1														
2														
1	.100	.116	.091	.233	.200	.108	.083	.100	.083	.141	.116	.083	.150	.083
2	.116	.150	.100	.083	.116	.116	.100	.083	.100	.150	.091	.100	.116	.083
1	.183	.108	.116	.116	.083	.083	.083	.083	.116	.083	.083	.083	.083	
2	.133	.100	.116	.083	.116	.133	.116	.150	.083	.100	.083	.074	.091	
8														
	.123	.119	.109	.121	.116	.101	.095	.104	.095	.113	.095	.085	.110	.083
4														
	.104	.120	.116	.108	.091	.087								
4														
	.133	.118	.105	.128	.128	.110	.095	.104	.095	.118	.093	.085	.110	.083

Retention

	29	30	31	32	33	34	35			1	2			
										.250 .100 .208 .400	.150 .100 .108 .100			
1	.083	.091	.133	.124	.083	.083	.083			.216 .274 .250 1.03	.116 .108 .091 .134			
2	.074	.100	.108	.091	.100	.091	.083							
8	.078	.095	.120	.107	.091	.087	.083			.341 .239	.112 .114			
4	.078	.095	.120	.107	.091	.087	.083			.442	.106			

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain Spine. 0	Cord Spine. 0	Body Length	Tail Length	Age
14	14	1.5500	.4565	148.2	78.75	72.27	185	143	146
14	14	1.6676	.5097	160.	78.68	72.12	184	143	146
20	20	1.6787	.4473	97.8	78.46	72.46	162	135	155
20	20	1.6982	.4515	113.6	78.49	72.47	170	148	155
35	35	1.5166	.3657	70.6	78.45	72.63	150	125	146
35	35	1.5121	.3836	70.5	78.20	72.24	149	131	146
24	24	1.6072	.4131	91.4	78.55	72.28	159	124	146
27	27	1.5576	.3738	71.9	78.44	72.55	147	122	146
		1.6460	.4125	103.0	78.49	72.37	163	133	148
		1.6436	.4660	129.9	78.57	72.33	175	142	150
		1.5484	.3590	76.1	78.41	72.42	151	125	146

TABLE II-b MAZE THREE TRIALS.

Averages		Males														Females															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
4	3.62	5.73	2.32	1.52	1.73	1.63	1.09	.691	1.54	.975	1.64	1.17	.347	.526		1	3.15	5.66	2.30	3.43	2.06	1.16	1.40	2.30	.450	3.26	1.25	2.38	1.30	.566	.400
4	4.01	7.62	4.44	.890	.906	1.02	1.00	1.07	.770	.574	.551	.903	.487	.479		2	5.66	1.85	1.16	.983	2.70	2.61	1.08	1.01	1.81	2.06	1.76	1.31	.308	.533	
8	3.81	5.68	3.38	1.20	1.32	1.32	1.59	.885	1.15	.774	1.09	1.04	.417	.520		1	3.15	7.68	2.58	1.66	1.13	.350	.500	.391	.616	.124	.750	.700	.150	.483	
4	3.62	3.73	2.32	1.52	1.73	1.63	1.09	.691	1.54	.975	1.64	1.17	.347	.526		2	5.66	1.85	1.16	.983	2.70	2.61	1.08	1.01	1.81	2.06	1.76	1.31	.308	.533	

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.183	.183	.100	.083	.083	.083	.074	.916	.350	.300	.183	.074	.083	.141
2	.333	.150	.166	.266	.116	.133	.216	.200	.483	.200	.116	.141	.116	.116
1	.233	.133	.108	.191	.116	.150	.100	.083	.083	.116	.083	.083	.083	.091
2	.533	.116	.350	.250	.200	.083	.100	.083	.083	.200	.083	.116	.183	.083
1	.116	.108	.174	.116	.100	.300	.083	.116	.108	.091	.083	.083	.083	.083
2	.700	.366	.350	.316	.166	.283	.516	.141	.133	.474	.150	.333	.666	.233
1	.666	.400	.283	.724	.316	.324	.333	.250	.133	.324	.250	.450	.633	.316
2	.833	.166	.333	.316	.183	.416	.300	.250	.250	.116	.166	.366	.316	.174
8	.449	.202	.233	.282	.160	.221	.215	.254	.202	.227	.139	.205	.270	.154
4	.320	.145	.181	.197	.128	.112	.122	.320	.249	.204	.116	.103	.116	.107
4	.578	.260	.285	.368	.191	.330	.308	.189	.156	.251	.162	.308	.424	.201

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.124	.235	.100	.083	.085	.083	.074	.084	.141	.083	.074	.124	.066	.066
2	.100	.116	.100	.124	.091	.108	.083	.100	.083	.108	.083	.083	.083	.083
1	.083	.074	.083	.083	.083	.083	.083	.083	.083	.083	.116			
2	.074	.071	.083	.083	.074	.091	.083	.100	.083	.083	.083			
1														
2														
1	.083	.074	.074	.074	.108	.074	.083	.083	.083	.116	.083	.083	.116	.083
2	.500	.166	.100	.183	.083	.058	.100	.083	.250	.083	.083	.091	.083	.083
1	.416	.216	.116	.116	.108	.133	.150	.100	.116	.250	.083	.166	.150	.183
2	.316	.200	.100	.116	.250	.083	.166	.083	.100	.166	.100	.100	.183	.183
8														
4	.212	.144	.094	.107	.110	.089	.102	.083	.117	.121	.088	.107	.113	.113
4	.095	.124	.091	.093	.083	.091	.080	.089	.097	.089	.089	.105	.074	.074
4	.328	.164	.097	.122	.137	.087	.124	.087	.127	.153	.087	.110	.133	.133

	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	.166	.074	.066	.066	.124	.116	.116	.074	.074	.150	.091	.200	.116	.091
2	.100	.085	.083	.083	.116	.083	.083	.083	.083	.083	.116	.083	.074	.083
1														
2	.085	.133	.083	.083	.083	.083	.083	.083	.074	.083	.083	.083	.083	.100
1	.083	.083	.250	.250	.150	.100	.133	.100	.166	.116	.116	.083	.083	.100
2	.366	.216	.250	.166	.124	.100	.174	.091	.108	.208	.233	.150	.116	.141
1	.100	.133	.083	.166	.091	.266	.083	.166	.224	.133	.083	.083	.100	.100
8	.149	.120	.135	.135	.114	.124	.112	.099	.121	.128	.120	.113	.095	.102
4	.133	.078	.074	.074	.120	.099	.099	.078	.078	.116	.103	.141	.095	.087
4	.158	.141	.166	.166	.112	.137	.118	.110	.143	.135	.128	.099	.095	.110

	57	58	59	60	61	62	63	64	65	66	67	68	69	70
1	.074	.083	.083	.091	.116	.074	.083	.083	.100	.133	.108	.083	.083	.100
2	.074	.083	.083	.100	.100	.066	.083	.091	.063	.083	.083	.083	.083	.083
1														
2														
1	.083	.083	.083	.083	.083	.100	.083		.116	.083	.100	.113	.133	.124
2	.166	.116	.100	.116	.108	.183	.108		.083	.074	.150	.150	.133	.083
1	.083	.166	.083	.083	.083	.074	.083	.116	.116	.083	.100	.113	.133	.124
2	.183	.083	.091	.083	.116	.083	.083	.083	.083	.074	.150	.150	.133	.083
8	.110	.102	.087	.092	.101	.096	.087	.093	.095	.093	.110	.108	.108	.097
4	.074	.083	.083	.095	.108	.070	.083	.087	.091	.108	.095	.083	.083	.091
4	.128	.113	.083	.091	.097	.110	.083	.093	.099	.078	.125	.133	.133	.103

	71	72	73	74	75	76	77	78	79	80	81	82	83	84
1	.091	.100	.100	.100	.116	.083	.083	.091						
2	.083	.083	.083	.083	.083	.083	.100	.083						
1	.091	.116	.116	.108	.091	.083	.100	.166	.100	.116	.083	.108	.100	.083
2	.083	.083	.083	.083	.074	.083	.074	.100	.116	.083	.083	.100	.100	.100
8	.087	.093	.093	.093	.091	.093	.089	.110	.108	.099	.083	.104	.100	.091
4	.087	.091	.091	.091	.099	.083	.091	.087						
4	.087	.099	.099	.095	.082	.083	.087	.133	.108	.099	.083	.104	.100	.091

	85	86	87	88	89	90	91	92	93	94	95	96	97	98
1	.158	.074	.074	.166	.141	.083	.083	.083	.083	.100	.083	.074	.083	.100
2	.091	.083	.100	.083	.083	.083	.100	.083	.074	.074	.083	.083	.083	.083
8	.124	.079	.087	.124	.112	.083	.091	.083	.078	.087	.083	.078	.083	.091
4	.124	.078	.087	.124	.112	.083	.091	.083	.078	.087	.083	.078	.083	.091

Retention.

	99			1	2	3	4	5	6						
				.233 1.92	.191 .233	.233 .150	.116 .100	.083 .083	.166 .083						
				.441 .250	.116 .124	.108 .116	.083 .116	.183 .091	.150 .100						
1	.083			.233 1.11	.200 .316	.124 .100	.133 .103	.183 .216	.158 .100						
2	.083			.400 .183	.191 .166	.116 .100	.100 .116	.091 .083	.083 .083						
8	.083			.597	.192	.130	.109	.126	.115						
4				.713	.166	.151	.103	.110	.124						
4	.083			.481	.218	.110	.114	.143	.106						

Tails	Days	Brain Weight	Cord Weight	Body Weight	Brain $\frac{g}{mm^2}$	Cord $\frac{g}{mm^2}$	Body Length	Tail Length	Age
78	26	1.5306	.4259	126.5	78.84	72.36	176	140	160
69	23	1.6213	.3983	106.8	78.71	72.53	162	124	160
39	13	1.5364	.4150	106.	78.35	71.47	167	143	144
39	13	1.6160	.4328	97.5	78.17	70.12	165	140	144
53	21	1.5378	.4092	96.2	78.40	72.39	160	147	144
57	19	1.4908	.3843	89.5	78.19	72.11	152	126	144
99	23	1.6380	.4257	93.	78.27	72.42	161	141	146
87	29	1.5701	.4131	81.8	78.39	72.45	156	134	146
		1.5675	.4255	99.6	78.56	72.36	162	136	148
		1.5760	.4430	109.2	78.51	72.12	167	136	152
		1.5591	.4080	90.1	78.61	72.66	157	137	145

TABLE II-c MAZE FIVE TRIALS.

	1													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Males	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	5.31	1.48	1.10	1.09	1.01	.316	.703	.433	.150	.183	.141	.183	.183	.250
2	2.50	2.05	1.49	2.20	3.00	.715	1.00	1.51	.785	.716	.516	.416	.233	.500
3	8.51	5.69	3.55	1.05	4.85	1.38	1.03	1.00	3.83	2.95	.500	.500	.900	.866
4	4.98	4.76	3.33	10.2	1.83	.700	.266	.350	.366	.616	.183	.216	.466	.166
Females	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2.25	2.08	5.03	.05	1.11	.750	.300	.700	.416	.250	.785	.166	.116	.150
2	4.10	10.7	8.25	2.91	1.58	.916	3.91	7.25	6.33	1.03	.866	.350	.400	.250
3	28.2	1.58	4.58	3.25	5.30	7.41	.950	.916	.633	1.66	.750	.566	.366	.550
4	7.00	6.16	2.91	3.00	1.25	1.45	8.00	2.10	3.33	2.00	.250	.500	.183	.333
Averages	8	7.85	4.06	3.78	5.24	2.74	1.71	2.02	1.78	1.97	1.17	.498	.387	.355
4	5.32	2.99	2.36	5.68	3.17	.794	.769	.823	1.28	1.11	.335	.328	.445	.445
4	10.3	5.13	5.19	2.60	2.31	2.63	3.29	2.74	2.67	1.23	.662	.445	.266	.320

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.316	.416	.250	.216	.116	.483	.100	.216	.150	.324	.283	.133	.083	.216
2	.216	.150	.200	.108	.133	.216	.083	.083	.074	.150	.083	.133	.116	.083
1	.833	1.28	.266	.366	.933	9.33	.200	.433	.450	.516	.400	.100	.083	.124
2	.158	.150	.166	.116	.116	.100	.116	.933	.400	.183	.108	.058	.083	.133
1														
1	.133	.116	.116	.250	.108	.116	.100	.116	.216	.116	.116	.100	.083	.166
2	.866	.383	.266	.166	.266	.233	.200	.166	.216	.250	.250	.133	.100	.116
1	.683	.216	.316	.416	.200	.600	.124	.216	.233	.133	.250	.108	.108	.108
2	.450	.174	.116	.250	.216	.116	.133	.116	.233	.166	.166	.124	.116	.116
8	.444	.360	.212	.236	.261	.349	.132	.284	.246	.229	.207	.111	.096	.132
4	.355	.499	.220	.201	.324	.433	.124	.416	.268	.293	.218	.106	.091	.139
4	.533	.222	.203	.270	.197	.266	.139	.153	.224	.166	.195	.116	.101	.126

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.074	.108	.116	.166	.091	.083	.083	.083	.133	.083	.083	.074	.074	.074
2	.116	.108	.083	.108	.091	.100	.100	.083	.083	.074	.083	.083	.083	.083
1	.100	.083	.116	.083	.083	.074	.074	.074	.083	.074	.083	.083	.074	.066
2	.116	.083	.083	.083	.083	.083	.083	.074	.074	.083	.100	.083	.083	.100
1														
2														
1	.083	.083	.100	.083	.083	.100	.083	.333	.416	.250	.166	.166	.116	.316
2	.100	.116	.100	.250	.200	.100	.083	.166	.200	.150	.133	.116	.100	.116
1	.200	.100	.150	.124	.133	.116	.166	.100	.116	.108	.166	.150	.166	.083
2	.133	.258	.166	.250	.200	.166	.100	.191	.166	.316	.316	.116	.100	.091
8	.115	.117	.114	.143	.120	.102	.096	.133	.158	.142	.140	.108	.099	.116
4	.101	.095	.099	.110	.087	.085	.085	.073	.093	.078	.085	.080	.078	.080
4	.129	.139	.129	.176	.154	.120	.108	.197	.224	.206	.195	.157	.120	.151

	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	.116	.074	.074	.085	.083	.083	.074	.074	.083	.065	.074	.083	.074	.083
2	.116	.074	.083	.083	.083	.100	.083	.074	.091	.085	.083	.083	.083	.116
1	.083	.116	.074	.100	.083	.083	.100	.083	.074	.074	.074	.074	.074	.091
2	.116	.083	.100	.091	.116	.074	.091	.083	.074	.074	.108	.03	.066	.083
1	.133	.433	.233	.133	.433	.233	.133	.100	.108	.216	.083	.083	.108	.083
2	.100	.100	.200	.091	.083	.100	.083	.083	.083	.166	.100	.083	.083	.100
1	.100	.133	.108	.150	.091	.091	.133	.383	.166	.083	.166	.116	.100	.091
2	.091	.083	.150	.100	.166	.108	.124	.250	.108	.100	.116	.150	.100	.150
8	.106	.137	.127	.104	.142	.109	.102	.141	.098	.107	.100	.094	.086	.099
4	.107	.086	.082	.089	.091	.085	.087	.078	.080	.074	.084	.080	.074	.093
4	.106	.187	.172	.118	.193	.133	.118	.204	.116	.141	.116	.108	.097	.106

	57	58	59	60	61	62	63	64	65	66	67	68	69	70
1	.133	.083	.083	.083	.083	.074	.083	.133	.083					
2	.091	.091	.033	.033	.033	.083	.083	.074	.083					
1	.074	.074	.083	.083	.083	.083	.083	.083	.116					
2	.074	.074	.074	.074	.083	.083	.074	.083						
1														
1	.516	.150	.083	.083	.083	.083	.091	.083	.074	.100	.083	.083	.166	.108
2	.091	.100	.233	.083	.083	.083	.083	.083	.100	.124	.108	.183	.250	.300
1	.174	.108	.091	.083	.091	.116	.083	.083	.166	.124	.116	.083	.083	.153
2	.083	.116	.091	.108	.150	.150	.100	.100	.216	.083	.116	.191	.116	.091
8	.129	.099	.102	.085	.092	.094	.085	.090	.114	.107	.105	.135	.155	.158
4	.093	.080	.080	.080	.083	.080	.080	.093	.089					
4	.166	.118	.144	.089	.101	.108	.089	.087	.139	.107	.105	.135	.153	.158

	71	72	73	74	75	76	77	78	79	80	81	82	83	84
1	.141	.091	.083	.083	.083	.116	.350	.083	.083	.083	.083	.124	.133	.083
2	.150	.150	.166	.191	.083	.091	.100	.074	.083	.108	.083	.083	.124	.083
1	.133	.200	.100	.083	.316	.133	.083	.083	.074	.083	.091	.091	.250	.116
2	.133	.216	.083	.166	.266	.083	.083	.116	.091	.150	.108	.124	.124	.166
8	.139	.164	.168	.130	.187	.106	.154	.089	.082	.106	.091	.105	.157	.112
4	.139	.164	.108	.130	.187	.106	.154	.089	.082	.106	.091	.105	.157	.112

	85	86	87	88	89	90	91	92	93	94	95	96	97	98
1	.250	.124	.074	.083	.083	.166	.083	.083	.166	.083	.150	.166	.183	.233
1	.083	.091	.091	.091	.083	.083	.083	.083	.074	.083	.093	.153	.116	.300
1	.116	.083	.083	.083	.083	.083	.116	.083	.083	.083	.083	.100	.066	.066
2	.116	.083	.083	.116	.083	.083	.083	.116	.100	.116	.083	.083	.083	.091
8	.141	.095	.082	.093	.083	.104	.091	.091	.106	.091	.099	.120	.112	.172
4	.141	.095	.082	.093	.083	.104	.091	.091	.106	.091	.099	.120	.112	.172

	99	100	101	102	103	104	105	106	107	108	109	110	111	112
1	.200	.133	.083	.074	.074	.083	.083	.091	.091	.083	.074	.100	.083	
2	.116	.116	.166	.083	.083	.100	.083	.074	.083	.074	.074	.083	.074	
1	.083	.083	.083	.083	.074	.116	.083	.083	.116	.083	.083	.083	.108	.074
2	.083	.083	.083	.083	.074	.100	.100	.083	.166	.100	.133	.083	.074	.166
8	.120	.103	.103	.080	.076	.099	.087	.082	.114	.087	.093	.078	.091	.099
4	.120	.103	.103	.080	.076	.099	.087	.082	.114	.087	.093	.078	.091	.099

	113	114	115	116	117	118	119	120	121	122	123	124	125	126
1	.083	.074	.074	.083	.083	.074	.083	.083	.083	.083	.083	.074	.083	.141
2	.066	.083	.108	.083	.083	.074	.083	.083	.083	.074	.091	.066	.083	.083
1	.083	.083	.074	.116	.083	.074	.116	.083	.091	.108	.083	.083	.066	.083
2	.100	.074	.091	.083	.150	.083	.116	.083	.108	.108	.083	.150	.083	.116
8	.083	.078	.086	.091	.099	.076	.099	.083	.091	.093	.085	.093	.078	.105
4	.083	.078	.086	.091	.099	.076	.099	.083	.091	.093	.085	.093	.078	.105

	127	128	129	130	131	132	133	134	135	136	137	138	139	140
1	.063	.083	.108	.083	.100	.116	.091	.083	.083	.166	.083	.083	.100	.066
2	.116	.074	.116	.074	.083	.074	.083	.091	.100	.116	.083	.083	.074	.074
1	.074	.083	.083	.200	.083	.108	.083	.083	.074	.091	.074	.116	.083	.083
2	.124	.083	.083	.083	.083	.100	.083	.083	.083	.074	.091	.083	.083	.091
8														
	.099	.080	.097	.110	.087	.099	.085	.085	.085	.111	.082	.091	.085	.078
4	.099	.080	.097	.110	.087	.099	.085	.085	.085	.111	.082	.091	.085	.078

	141	142	143	144	145	146	147	148	149	150	151	152	153	154
1	.133	.133	.091	.083	.083	.083	.100	.083	.083	.083	.091	.091	.063	.083
2	.074	.091	.083	.083	.074	.124	.108	.124	.083	.191	.124	.083	.083	.108
1	.083	.141	.124	.083	.083	.091	.100	.083	.083	.100	.100	.100	.100	.100
2	.083	.091	.083	.100	.083	.083	.100	.100	.083	.083	.074	.166	.083	.083
8	.093	.114	.095	.087	.080	.095	.102	.097	.083	.114	.097	.110	.087	.093
4	.093	.114	.095	.087	.080	.095	.102	.097	.083	.114	.097	.110	.087	.093

	155	156	157	158	159	160	161	162	163	164	165	166	167	168
1	.083	.133	.133	.083	.100	.216	.108	.116	.074	.083	.083	.133	.091	.100
2	.083	.200	.091	.100	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083
1	.091	.100	.116	.100	.091	.083	.100	.083	.083	.100	.074	.124	.116	.100
2	.074	.083	.083	.100	.083	.083	.100	.100	.083	.083	.083	.083	.124	.116
8														
	.082	.129	.105	.095	.089	.116	.097	.095	.080	.087	.080	.105	.103	.099
4														
	.082	.129	.105	.095	.089	.116	.097	.095	.080	.087	.080	.105	.103	.099

	169	170	171	172	173	174	175								
1	.083	.083	.074	.083	.083	.083	.083								
2	.091	.091	.100	.100	.074	.100	.083								
1	.083	.083	.091	.083	.083	.091	.083								
2	.083	.083	.100	.100	.108	.083	.091								
8	.085	.085	.091	.091	.087	.089	.085								
4	.085	.085	.091	.091	.087	.089	.085								

Retention.

1	2	3	4	5	6	7	8	9	10				
.100	.133	.100	.091	.141	.108	.091	.091	.091	.150				
.108	.108	.150	.108	.100	.100	.100	.108	.091	.116				
.124	.091	.091	.083	.274	.083	.083	.083	.083	.116				
.100	.091	.091	.083	.083	.083	.091	.091	.083	.108				
.200	.100	.183	.150	.091	.100	.150	.083	.091	.100				
.083	.100	.183	.083	.133	.083	.108	.083	.083	.216				
.124	.108	.116	.150	.083	.083	.100	.083	.083	.083				
.100	.116	.108	.116	.091	.091	.091	.091	.183	.100				
.117	.105	.127	.108	.124	.091	.101	.089	.098	.123				
.108	.105	.108	.091	.149	.093	.091	.083	.087	.122				
.126	.106	.147	.124	.099	.089	.112	.085	.085	.124				

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain Weight	Cord Weight	Body Length	Tail Length	Age
65	13	1.6008	.4285	98.	78.39	71.75	165	138	144
50	10	1.4861	.4025	93.5	78.18	71.55	162	144	144
55	11	1.5615	.3950	87.8	78.40	71.92	160	128	144
60	12	1.6578	.4279	103.	78.17	71.58	167	151	144
150	30	1.6285	.4176	117.7	78.68	72.75	164	131	160
175	35	1.8037	.4792	144.9	78.77	72.04	181	155	160
165	33	1.6384	.4130	111.8	78.79	72.52	162	128	160
175	35	1.6139	.4001	106.1	78.22	71.91	168	131	160
		1.6287	.4219	107.8	78.57	72.00	164	136	152
		1.5765	.4164	95.5	78.53	71.70	163	137	144
		1.6710	.4274	120.1	78.61	72.30	166	135	160

TABLE III-a LATCH BOX WITH OTHER PROBLEMS ONE TRIAL.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Males		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	2.13	10.0	.683	1.25	.583	.366	.500	.500	.166	.066	.050	.050	.050	.066
2	3	3.33	.583	2.00	.666	.250	.500	.124	.166	.100	.083	.100	.133	.066	.116
3		4.45	1.06	.666	.966	1.25	.466	1.08	.500	.058	.050	.116	.100	.483	.091
1	2	10.0	2.75	.666	.200	.866	.200	.016	.033	.024	.033	.016	.016	.024	.016
2	3	.650	6.33	6.33	1.35	.300	1.75	.024	.333	.016	.016	.016	.016	.024	.083
3		.316	3.25	.100	.766	.108	1.50	.366	1.25	.200	.041	.024	.033	.116	.100
1	2	2.53	3.58	5.15	1.00	.250	.024	.024	.024	.020	.024	.016	.016	.016	.016
2	3	8.00	2.50	2.16	.683	.666	.333	.074	.033	.016	.058	.016	.024	.016	.066
3		4.00	2.09	2.00	.650	.833	.416	.433	.050	.108	.083	.058	.066	.141	.150
1	2	7.62	1.70	.183	.750	.316	.408	.750	.050	.050	.091	.041	.016	.016	.024
2		1.50	.366	.250	.933	.783	.300	.083	.033	.066	.016	.016	.066	.033	.016
1	2	3.41	6.23	2.16	1.05	15.0	6.00	.650	1.21	5.93	5.55	1.50	1.13	.583	.683
2		5.55	2.33	4.38	1.16	.450	.116	.066	.083	.024	.316	.016	.016	.016	.033
1	2	10.0	2.48	.500	.058	3.91	.916	.466	1.40	.116	.366	.133	.366	.124	.166
2		25.6	1.25	2.45	.266	3.91	.333	.024	.066	.066	.233	.083	.416	.800	.108
1	2	2.23	1.25	.250	.066	.116	.083	.024	.033	.066	.016	.033	.058	.024	.016
2		1.83	1.95	.083	.083	.166	.066	.024	.066	.050	.050	.058	.133	.058	.050
3		1.08	1.16	.308	.083	.083	.083	.050	.033	.066	.050	.200	.066	.050	.050
Females															
Averages		18	5.24	2.83	1.68	.665	1.46	.770	.265	.325	.296	.396	.138	.151	.146
	11	4.05	3.11	1.83	.837	.564	.570	.315	.270	.074	.051	.042	.048	.089	.067
	7	7.10	2.37	1.44	.395	2.87	1.08	.186	.413	.902	.940	.289	.312	.236	.158

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1 ¹	.041	.041	.050	.041	.191	.016	.116	.083	.050	.066	.041	.033	.050	.100
2	.108	.216	.066	.083	.016	.050	.050	.066	.074	.050	.041	.041	.150	.050
3	.324	.350	.066	.500	.150	.166	.333	.066	.166	.150	.050	.041	.074	.050
1	.016	.016	.016	.016	.033	.166	.016	.016	.016	.016	.008	.008	.016	.024
2	.024	.116	.333	.250	.250	.133	.250	.033	.150	.016	.024	.033	.041	.050
3	.074	.083	.066	.066	.183	.100	.116	.150	.100	.066	.050	.050	.066	.050
1	.016	.083	.016	.016	.050	.016	.016	.016	.016	.008	.016	.008	.016	.016
2	.024	.016	.033	.016	.016	.016	.016	.016	.016	.016	.008	.008	.050	.016
3	.133	.016	.133	.250	.108	.100	.083	.050	.058	.033	.050	.050	.016	.033
1	.016	.016	.016	.150	.100	.033	.116	.133	.133	.050	.050	.050	.024	.024
2	.024	.033	.041	.033	.066	.024	.033	.016	.016	.050	.033	.083	.016	.008
1	.116	.116	.266	.116	.150	.316	.016	.766	.350	.750	.183	.041	.183	.024
2	.016	.016	.016	.016	.024	.066	.183	.024	.066	.074	.024	.024	.016	.016
1	.133	.066	.016	.100	.600	.041	.016	.041	.066	.033	.033	.016	.016	.016
2	.066	.066	.066	.183	.016	.016	.016	.033	.083	.024	.016	.066	.116	.016
1	.383	.083	.500	.500	.516	.200	.083	.033	.050	.033	.066	.216	.166	.033
2	.074	.050	.100	.183	.050	.091	.041	.050	.066	.050	.016	.050	.166	.050
3	.058	.050	.066	.116	.066	.083	.041	.050	.033	.050	.033	.050	.050	.150
18	.091	.079	.103	.146	.143	.082	.083	.091	.083	.085	.041	.048	.068	.040
11	.072	.089	.076	.129	.105	.060	.104	.058	.072	.047	.033	.036	.047	.038
7	.120	.063	.147	.173	.203	.116	.056	.142	.102	.144	.053	.066	.101	.043

	29	30	31	32	33	34	35	36	37	38	39	40	41
1	.041	.033	.033	.024	.050	.033	.024	.024	.024				
2	.050	.033	.050	.033	.033	.033	.024	.024	.024				
3	.041	.066	.033	.016	.050	.016	.033	.033	.033				
1	.008	.016	.016	.016	.008	.016	.016	.016					
2	.016	.016	.024	.016	.008	.008	.016	.016					
3	.100	.083	.041	.133	.024	.033	.033	.033					
1	.016	.008	.016	.008	.016	.008	.008	.016	.008	.016	.016		
2	.016	.008	.008	.008	.033	.016	.008	.008	.008	.016	.016		
3	.024	.033	.033	.033	.016	.033	.016	.033	.016	.016	.016		
1	.033	.050	.024	.016	.016								
2	.016	.016	.016	.016	.016								
1	.250	.016	.016	.016	.016	.016	.024	.016	.016	.016	.016		
2	.150	.016	.058	.024	.050	.024	.016	.016	.016	.016	.016		
1	.016	.008	.033	.250	.033	.050	.016	.008	.024				
2	.066	.083	.033	.016	.016	.008	.008	.008	.016				
1	.216	.024	.050	.050	.033	.033	.033	.024	.041	.033	.016	.016	.016
2	.050	.024	.116	.033	.008	.008	.016	.016	.016	.033	.041	.016	.008
3	.016	.050	.050	.016	.033	.033	.033	.016	.050	.033	.016	.016	.016
18	.062	.032	.036	.040	.025	.023	.017	.019	.016	.022	.019	.016	.013
11	.032	.032	.026	.029	.024	.021	.019	.022	.021	.016	.016		
7	.109	.021	.050	.057	.027	.024	.011	.014	.025	.026	.021	.016	.013

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain % H ₂ O	Cord % H ₂ O	Body Length	Tail Length	Age
37	37	1.6521	.4138	105.1	78.827	72.643	161	133	145
37	37	1.6159	.4088	117.5	78.760	72.602	167	140	145
37	37	1.6251	.4138	106.5	78.825	72.909	162	137	145
16	16	1.6654	.4507	122.8	78.461	71.999	169	145	145
11	11	1.7052	.4523	136.2	78.512	71.945	176	145	145
36	36	1.6686	.4505	140.2	78.526	72.142	175	145	145
13	13	1.7387	.4530	129.5	78.242	71.655	175	149	144
20	20	1.6418	.4450	125.2	78.511	71.797	170	148	144
39	39	1.7017	.4613	137.2	78.492	71.970	179	146	144
17	17	1.6945	.4586	148.9	78.347	71.849	180	153	144
29	29	1.8603	.4765	144.0	78.234	71.752	177	148	144
32	32	1.6358	.4084	105.1	78.695	72.257	162	142	157
17	17	1.5725	.3826	100.0	78.550	72.137	155	134	157
28	28	1.6240	.4276	117.0	78.534	71.702	164	151	140
21	21	1.6723	.4349	124.0	78.694	71.878	165	146	140
41	41	1.6182	.3818	89.0	78.407	71.765	150	126	144
35	35	1.6446	.4251	115.4	78.299	71.888	167	150	144
41	41	1.7092	.4126	102.1	78.762	72.322	160	143	144
28	28	1.6692	.4509	120.2	78.537	72.067	167	143	145
26	26	1.6681	.4440	128.2	78.521	72.114	171	144	144
30	30	1.6395	.4104	107.5	78.565	71.992	160	141	146

TABLE III-b LATCH BOX THREE TRIALS.

Averages	Males													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.041	.366	.250	30.0	1.58	.766	.750	.533	.033	.024	.016	.016	.766	.016
2	1.58	.333	.300	.616	.183	.100	.750	.166	.158	.100	.016	.166	.100	.016
3	2.66	2.95	1.20	1.83	.333	.166	1.35	.233	.083	.158	.024	.091	.066	.083
1	1.51	.732	1.11	.116	.033	.083	.966	.083	.083	.041	.041	.016	.041	.024
1	1.16	1.41	1.83	1.78	2.75	.316	1.43	.050	.033	.266	.116	.250	.250	.050
2	4.00	1.00	.250	1.20	.116	.500	.066	.083	.050	.500	.166	.066	.050	.083
3	14.1	30.0	.750	1.33	.666	.500	.533	.274	.050	.150	.074	.933	.116	.116
1	.183	.233		3.38	1.08	.841	.616	.266	.050	.024	.024	.033	.033	.066
2	3.50	21.5	.216	.308	.666	.124	.150	.183	.050	.200	.041	.050	.233	.066
1	5.00	.350	.416	1.91	.183	.183	.033	.116	.024	.100	.050	.133	.033	.050
2	10.0	4.41	.466	.433	.083	.100	.083	.033	.016	.016	.016	.416	.116	.024
1	.316	.100	2.33	.216	.333	.183	.116	.266	.033	.066	.083	.050	.024	.033
2	35.0	1.11	.416	.091	.233	.183	.100	.033	.083	.783	.033	.500	.133	.216
1	4.33	1.36	.583	1.56	.566	1.40	.883	.050	.316	.616	.033	.024	.033	.033
2	.283	3.21	.666	.333	.066	.100	.116	.050	.016	.100	.016	.016	.141	.066
1	4.03	5.41	2.33	.166	.350	.983	.091	.566	.300	.050	.116	.041	.108	.033
2	1.41	.683	1.91	.566	.058	.516	.200	.016	.016	.100	.050	.024	.500	.033
1	1.50	.166	.083	4.20	.423	.400	.183	.024	.033	.066	.133	.033	.033	.033
Females														
1	5.04	4.18	.888	2.77	.539	.415	.468	.168	.079	.186	.058	.158	.154	.057
1	3.95	5.75	.678	3.90	.695	.334	.611	.183	.057	.143	.053	.195	.154	.054
7	6.69	1.71	1.18	1.02	.291	.538	.241	.143	.114	.254	.066	.098	.138	.064

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.016	.016	.083	.033	.183	.016	.016	.016	.016	.016	.024	.008	.008	.024
2	.033	.016	.016	.016	.083	.041	.016	.058	.050	.050	.041	.024	.033	.050
3	.016	.083	.016	.066	.041	.016	.016	.016	.033	.016	.016	.008	.008	.141
1	.066	.016	.166	.016	.066	.008	.016	.200	.058	.016	.066	.016	.016	.050
1	.041	.050	.050	.024	.116	.033	.416	.333	.074	.250	.050	.033	.066	.166
2	.091	.041	.033	.074	.216	.083	.166	.074	.016	.066	.166	.050	.100	.024
3	.116	.333	.016	.016	.066	.058	.016	.100	.050	.016	.050	.116	.033	.066
1	.116	.033	.041	.016	.008	.008	.024	.008	.008	.016	.016	.016	.016	.033
2	.066	.250	.050	.050	.066	.033	.033	.066	.166	.050	.050	.033	.033	.050
1	.024	.016	.016	.016	.016	.016	.008	.016	.008	.016	.016	.016	.016	.083
2	.016	.066	.016	.083	.050	.016	.100	.100	.033	.016	.083	.033	.016	.016
1	.166	.033	.024	.024	.041	.016	.266	.024	.033	.016	.024	.008	.008	.024
2	.133	.033	.050	.116	.066	.066	.016	.033	.016	.016	.008	.050	.008	.016
1	.016	.033	.024	.024	.100	.033	.033	.016	.116	.016	.100	.150	.150	.074
2	.050	.016	.016	.016	.033	.024	.050	.116	.150	.100	.016	.066	.033	.016
1	.024	.050	.033	.066	.066	.050	.066	.066	.066	.050	.033	.150	.200	.058
2	.083	.066	.133	.033	.016	.033	.024	.083	.066	.050	.016	.200	.100	.016
1	.050	.066	.041	.050	.066	.050	.008	.024	.050	.058	.016	.033	.066	.083
18	.052	.075	.045	.041	.072	.037	.071	.075	.056	.046	.043	.056	.050	.055
11	.054	.088	.045	.037	.082	.029	.075	.089	.046	.048	.052	.032	.031	.063
7	.074	.056	.045	.047	.055	.038	.066	.051	.071	.043	.030	.093	.080	.041

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.008	.008	.024	.008	.008	.016	.016	.016	.016	.024	.100	.008	.016	.016
2	.074	.016	.066	.050	.050	.050	.041	.033	.033	.216	.150	.033	.016	.016
3	.024	.008	.008	.008	.008	.016	.016	.016	.016	.066	.058	.008	.008	.008
1	.033	.016	.033	.024	.024	.016	.016	.033	.024	.024	.024	.050	.016	.016
1	.024	.024	.016	.016	.016	.050	.033	.016	.024	.016	.016	.016	.016	.016
2	.024	.016	.024	.083	.124	.033	.033	.016	.050	.116	.016	.016	.016	.024
3	.016	.016	.024	.016	.016	.024	.016	.016	.016	.033	.024	.016	.083	.016
1	.016	.016	.008	.008	.008	.016	.016	.016	.008	.008	.008	.008	.008	.008
2	.033	.033	.024	.024	.024	.033	.016	.083	.016	.024	.016	.024	.024	.033
1	.350	.066	.016	.016	.033	.033	.008	.016	.008	.008	.008	.008	.008	.016
2	.141	.016	.050	.041	.033	.024	.016	.016	.016	.016	.016	.008	.008	.033
1	.066	.024	.050	.033	.016	.016	.016	.016	.083	.033	.033	.016	.116	.083
2	.016	.016	.008	.008	.008	.008	.016	.016	.016	.024	.008	.016	.016	.250
1	.066	.033	.050	.024	.024	.100	.016	.016	.033	.083	.050	.016	.024	.024
2	.066	.033	.016	.016	.016	.008	.016	.033	.016	.024	.016	.008	.008	.033
1	.083	.066	.050	.033	.033	.050	.100	.083	.050	.024	.041	.041	.041	.024
2	.016	.016	.033	.016	.016	.016	.116	.033	.016	.024	.066	.033	.016	.016
1	.083	.150	.050	.050	.033	.033	.016	.008	.016	.016	.016	.024	.016	.016
18	.063	.031	.030	.026	.028	.029	.029	.027	.027	.044	.037	.019	.025	.036
11	.067	.021	.026	.026	.033	.026	.020	.024	.021	.050	.039	.017	.019	.018
7	.056	.048	.036	.022	.020	.033	.042	.031	.037	.036	.032	.022	.033	.063

	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	.008	.016	.016	.008	.035	.008	.016	.016	.016	.016	.016	.016	.016	.016
2	.016	.008	.016	.035	.035	.050	.100	.016	.016	.050	.016	.016	.016	.016
3	.024	.016	.008	.008	.008	.008	.016	.016	.016	.016	.016	.016	.016	.016
1	.066	.016	.091	.016	.050	.066	.035	.016	.016	.024	.016	.016	.024	.035
1	.016	.016	.008	.035	.016	.016	.050	.016	.024	.024	.016	.024	.016	.066
2	.035	.024	.100	.066	.035	.035	.066	.016	.016	.016	.016	.016	.066	.035
3	.085	.035	.035	.016	.035	.035	.016	.016	.016	.016	.016	.035	.024	.024
1	.008	.008	.008											
1	.024	.024	.016	.008	.008	.008	.016	.016	.016	.016	.016	.035	.008	.008
1	.008	.008	.008	.008	.008	.008	.016	.024	.008	.016	.016	.050	.035	.016
2	.016	.016	.016	.024	.016	.035	.016	.024	.008	.016	.016	.050	.035	.016
1	.050	.024	.024	.035	.050	.016	.050	.035	.024	.016	.016	.016	.035	.024
2	.050	.035	.024	.016	.008	.008	.008	.008	.008	.008	.008	.050	.016	.016
1	.024	.024	.035	.016	.016	.016	.066	.035	.035	.008	.074	.050	.016	.016
2	.016	.050	.016	.016	.016	.050	.008	.008	.008	.008	.016	.050	.008	.008
1	.035	.035	.035	.024	.024	.016	.050	.035	.041	.041	.100	.050	.041	.050
2	.016	.016	.016	.050	.016	.016	.035	.024	.024	.041	.085	.016	.016	.016
1	.024	.066	.016	.024	.016	.016	.016	.016	.016	.085	.050	.016	.016	.016
18	.028	.025	.026	.024	.035	.024	.035	.019	.018	.025	.036	.029	.022	.025
11	.027	.016	.029	.025	.025	.028	.036	.016	.016	.021	.016	.024	.024	.025
7	.030	.035	.025	.025	.020	.019	.035	.022	.022	.029	.049	.035	.022	.020

	57	58	59	60	61	62	63	64	65	66	67	68	69	70
1	.016	.016	.008	.008	.016	.016	.016	.016	.008	.008	.008	.016	.016	.008
2	.016	.016	.050	.050	.041	.033	.041	.016	.024	.024	.033	.033	.033	.033
3	.016	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008
1	.033	.016	.016	.016	.024	.024	.016	.016	.050	.016	.016	.016	.016	.016
1	.133	.033	.050	.066	.033	.033	.016	.008	.008	.016	.008	.016	.016	
2	.033	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	
3	.033	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	
1	.033	.008	.008	.008	.008	.008	.008	.016	.016	.016	.008	.016	.016	
2	.016	.016	.016	.033	.008	.016	.016	.016	.033	.016	.016	.016	.016	
1	.016	.033	.024	.016	.050	.041	.050	.016	.016	.016	.016	.016	.016	.008
2	.016	.008	.016	.016	.008	.008	.024	.016	.016	.016	.016	.016	.016	.008
1	.016	.008	.008	.016	.016	.016	.016							
2	.008	.008	.008	.008	.016	.008	.008							
1	.041	.041	.058	.050	.024	.016	.041	.033	.033	.066	.024	.050	.033	.016
2	.050	.016	.150	.016	.016	.008	.016	.016	.016	.024	.008	.008	.008	.016
1	.016	.016	.033	.016	.016	.016	.016	.008	.008	.008	.016	.016	.016	
18	.030	.017	.030	.022	.019	.017	.020	.015	.019	.019	.014	.018	.017	.014
11	.036	.016	.020	.024	.018	.016	.017	.014	.019	.015	.014	.017	.017	.016
7	.023	.021	.042	.019	.020	.016	.024	.017	.017	.026	.016	.021	.017	.012

Retention

	71	72	73	74	75	76	77	78	1	2	3	4	5	6
1	.008	.008							.008	.008	.008	.008	.008	.008
2	.016	.016							.016	.008	.008	.008	.008	.008
3	.008	.008							.008	.166	.333	.016	.016	.016
1	.016	.016	.008	.016	.024	.016	.016	.016	.016	.008	.008	.008	.008	.008
									.183	.016	.016	.050	.116	.083
									.816	.016	.008	.033	.016	.033
									.750	.166	.100	.016	.033	.033
									.016	.016	.016	.008	.016	.016
									.016	.050	.033	.008	.008	.008
1	.024	.016	.024	.016	.016				.024	.008	.033	.016	.016	.016
2	.016	.016	.008	.008	.016				.024	.050	.033	.016	.016	.016
									.016	.016	.016	.050	.016	.016
									.016	.008	.008	.016	.016	.016
1									.050	.041	.033	.016	.083	.008
2	.024	.016							.033	.008	.008	.016	.050	.050
									.250	.008	.016	.316	.033	.033
1														
18	.016	.013	.013	.013	.018	.016	.016	.016	.140	.037	.042	.037	.028	.023
11	.012	.012	.008	.016	.024	.016	.016	.016	.203	.050	.058	.017	.025	.023
7	.020	.014	.016	.012	.016				.059	.019	.021	.063	.032	.022

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain $\frac{g}{kg}$	Cord $\frac{g}{kg}$	Body Length	Tail Length	Age
30	10	1.6707	.4388	108.9	78.482	71.968	170	145	140
72	24	1.6876	.4476	116.2	78.312	71.559	172	146	140
48	16	1.8095	.4902	131.3	78.723	72.115	178	152	140
75	25	1.6716	.4319	105.9	78.434	72.262	162	145	149
45	15	1.7482	.4715	120.5	78.612	72.492	177	148	149
66	22								
53	11	1.7948	.4790	137.5	78.694	72.422	175	149	142
45	15	1.7340	.4366	109.4	78.685	72.606	166	138	142
24	8	1.7214	.4408	122.5	78.651	72.481	173	142	149
45	15	1.7013	.4254	106.4	78.551	72.543	164	137	149
72	24	1.7245	.4275	100.4	78.602	72.701	163	122	140
36	12	1.6846	.4121	110.7	78.617	72.482	164	146	140
65	21	1.6590	.3837	100.9	78.571	71.722	155	141	142
65	21	1.6859	.4039	101.2	78.711	72.617	158	139	142
72	24	1.6846	.3983	95.9	78.814	72.734	153	137	142
69	23	1.4451	.3354	73.4	78.956	74.776	145	122	142
69	23	1.6129	.4044	98.1	78.572	72.650	158	137	149
55		1.6897	.4266	108.7	78.624	72.509	164	140	145
49		1.7265	.4513	117.6	78.571	72.274	170	144	144
63		1.6423	.3950	97.2	78.691	72.811	156	134	142

TABLE III-c LATCH BOX FIVE TRIALS.

Males													
1	.333	.133	.250	.166	.050	.016	.016	.016	.050	.008	.016	.016	.016
2	2.41	.700	1.11	.283	.250	.283	.216	.050	.066	.050	.016	.033	.016
3	.666	.416	.666	1.01	1.11	.933	1.36	.150	.500	.283	.066	.166	.066
4	.833	.500	.416	.333	.083	.266	.050	.500	.416	.183	.016	.016	.016
1	.516	.050	.566	.500	.416	.350	.316	.150	.024	.083	.483	.033	.150
2	12.4	.283	.416	.333	.366	.200	.166	.066	.074	.050	.183	.116	.133
1	.500	1.25	.266	.316	.366	.200	.200	.166	.033	.033	.033	.033	.041
2	1.16	4.75	.250	1.00	.233	.050	.200	.083	.200	.041	.083	.133	.041
1	12.0	.233	.133	.116	.566	.183	.124	.283	.050	.216	.266	.016	.050
2	1.76	1.11	.058	.033	.041	.091	.024	.074	.024	.033	.216	.016	.050
1	.166	.333	.250	.250	2.16	.066	.083	.050	.033	.033	.058	.083	.150
Females													
1	1.50	.583	.166	.500	1.16	.333	.150	.116	.100	.250	.116	.066	.116
2	.500	1.75	2.50	.533	.916	.083	.333	.066	.150	.033	.183	.016	.016
1	1.33	.316	.466	.800	.083	.216	.316	.100	.074	.050	.100	.066	.066
1	.983	.050	.433	.750	.366	.250	.016	.124	.008	.016	.041	.166	.116
2	.3.16	.500	.450	2.31	.183	1.08	.033	.150	.041	.024	.133	.183	.083
1	5.75	.730	.083	.416	.250	.308	.233	.233	.166	.050	.200	.016	.016
2	2.83	1.75	.500	.083	.500	.616	.116	.083	.033	.083	.066	.033	.083
Averages	16	2.71	.858	.498	.540	.505	.306	.219	.136	.108	.103	.137	.066
	11	2.97	.887	.393	.394	.512	.239	.250	.144	.130	.121	.148	.058
	7	2.29	.814	.656	.779	.494	.412	.171	.124	.074	.072	.119	.078
												.070	.056

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.016	.016	.033	.033	.033	.024	.016	.016	.016	.016	.016	.016	.016	.024
2	.016	.200	.041	.033	.033	.066	.166	.033	.041	.050	.024	.050	.024	.016
3	.016	.016	.050	.024	.041	.058	.033	.016	.016	.050	.083	.166	.050	.016
4	.016	.116	.016	.016	.033	.033	.233	.050	.016	.058	.024	.024	.016	.024
1	.100	.183	.083	.050	.050	.066	.233	.033	.083	.024	.050	.100	.050	.024
2	.066	.141	.066	.058	.024	.016	.116	.016	.116	.016	.050	.100	.033	.016
1	.041	.066	.066	.016	.074	.033	.083	.066	.116	.033	.033	.166	.083	.024
2	.233	.050	.050	.033	.033	.033	.050	.024	.050	.016	.033	.016	.033	.033
1	.016	.116	.050	.033	.033	.033	.050	.033	.024	.033	.016	.016	.016	.033
2	.024	.050	.050	.016	.024	.066	.066	.016	.016	.016	.016	.016	.016	.033
1	.416	.216	.066	.083	.016	.083	.033	.024	.016	.016	.016	.083	.100	.050
1	.083	.066	.066	.050	.041	.033	.166	.050	.050	.033	.033	.083	.033	.050
2	.083	.024	.100	.016	.016	.016	.024	.016	.024	.016	.016	.016	.016	.016
1	.133	.083	.116	.033	.050	.066	.083	.050	.016	.133	.100	.050	.024	.083
1	.041	.033	.016	.016	.016	.016	.016	.033	.008	.008	.008	.050	.033	.008
2	.016	.024	.016	.100	.016	.016	.066	.033	.050	.033	.133	.041	.041	.016
1	.016	.074	.100	.016	.016	.016	.016	.050	.074	.033	.041	.016	.016	.050
2	.200	.033	.033	.024	.033	.033	.016	.016	.183	.050	.033	.074	.108	.133
18														
	.085	.088	.056	.036	.031	.039	.081	.031	.050	.035	.040	.060	.039	.036
11	.087	.106	.051	.035	.034	.046	.098	.029	.046	.029	.032	.068	.039	.026
7	.081	.048	.063	.036	.026	.028	.055	.035	.057	.043	.052	.047	.038	.050

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.024	.033	.050	.016	.033	.016	.033	.016	.008	.008	.016	.016	.033	.008
2	.016	.016	.333	.050	.050	.050	.024	.016	.016	.066	.016	.016	.016	.033
3	.100	.016	.166	.064	.116	.074	.083	.016	.050	.016	.016	.016	.033	.016
4	.016	.016	.116	.050	.050	.016	.266	.041	.050	.016	.033	.033	.024	.083
1	.033	.016	.066	.116	.033	.033	.083	.100	.183	.050	.033	.216	.116	.016
2	.016	.016	.100	.083	.033	.033	.033	.116	.016	.016	.041	.066	.083	.016
1	.016	.016	.133	.116	.033	.050	.066	.083	.024	.016	.016	.016	.016	.016
2	.091	.024	.050	.133	.050	.016	.016	.033	.016	.016	.008	.008	.008	.008
1	.033	.016	.016	.016	.016	.016	.033	.008	.016	.033	.008	.008	.024	.008
2	.008	.016	.008	.008	.008	.008	.016	.016	.016	.008	.008	.008	.008	.008
1	.066	.250	.416	.016	.016	.033	.050	.083	.016	.016	.016	.016	.033	.008
1	.066	.083	.116	.183	.133	.066	.016	.024	.050	.024	.050	.024	.024	.016
2	.016	.016	.024	.083	.016	.016	.016	.066	.016	.016	.016	.016	.016	.016
1	.033	.016	.024	.016	.066	.024	.016	.008	.016	.016	.016	.016	.033	.016
1	.008	.008	.016	.016	.016	.008	.024	.024	.024	.016	.016	.016	.016	.024
2	.050	.016	.033	.033	.033	.033	.033	.033	.016	.024	.033	.033	.033	.024
1	.050	.033	.016	.033	.024	.033	.016	.033	.016	.050	.016	.016	.016	.050
2	.150	.041	.033	.066	.083	.033	.033	.050	.016	.016	.016	.016	.016	.016
18														
	.044	.036	.095	.058	.044	.031	.046	.040	.031	.028	.020	.030	.030	.021
11	.038	.039	.132	.057	.039	.031	.063	.053	.037	.023	.019	.038	.035	.020
7	.053	.030	.037	.061	.053	.030	.019	.019	.022	.023	.023	.019	.022	.023

	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	.008	.008	.033	.008	.008	.016	.016	.016	.008	.016	.016	.016	.016	.016
2	.066	.050	.016	.016	.016	.016	.033	.016	.008	.016	.016	.008	.008	.016
3	.016	.016	.016	.016	.016	.016	.033	.016	.016	.016	.016	.016	.033	.050
4	.150	.016	.016	.033	.016	.034	.083	.050	.016	.041	.016	.016	.016	.016
1	.050	.041	.016	.116	.100	.050	.083	.016	.200	.033	.033	.016	.033	.133
2	.015	.016	.033	.116	.058	.050	.183	.033	.066	.074	.024	.083	.041	.166
1	.016	.016	.016	.016	.016	.016	.016	.016	.033	.016	.016	.016	.016	.024
2	.008	.008	.016	.016	.016	.008	.008	.008	.016	.016	.016	.033	.050	.016
1	.016	.008	.008	.024	.016	.016	.016	.016						
2	.008	.041	.041	.033	.008	.008	.008	.008						
1	.016	.008	.016	.016	.016	.016	.016	.016	.008	.008	.008	.008	.008	
1	.016	.016	.016	.050	.033	.016	.016	.016	.033	.024	.033	.016	.016	.016
2	.016	.016	.016	.016	.008	.024	.033	.016	.016	.016	.016	.016	.016	.033
1	.016	.016	.016	.016	.016	.016	.016	.041	.024	.024	.016	.033	.016	.033
1	.016	.016	.033	.016	.016	.008	.008	.008						
2	.033	.016	.016	.008	.008	.016	.016	.024						
1	.016	.016	.016	.016	.016	.033	.033	.016	.016	.008	.008	.008	.016	.116
2	.050	.016	.050	.030	.033	.033	.016	.033	.050	.033	.033	.033	.033	.016
18	.029	.018	.021	.032	.023	.020	.030	.020	.036	.024	.019	.022	.020	.050
11	.033	.020	.020	.037	.026	.021	.045	.019	.041	.026	.017	.023	.024	.054
7	.023	.016	.023	.024	.018	.018	.019	.022	.027	.021	.021	.021	.019	.042

	57	58	59	60	61	62	63	64	65	66	67	68	69	70
1	.024	.008	.005	.008										
2	.016	.016	.016	.016										
3	.004	.016	.016	.016										
4	.008	.015	.008	.008										
1	.033	.050	.024	.133	.016	.041	.008	.016	.041	.016	.024	.018	.016	.008
2	.033	.050	.083	.050	.050	.024	.016	.024	.024	.066	.030	.033	.024	.024
1	.041	.016	.016	.050	.016	.016	.016	.016	.033	.016	.016	.016	.041	.041
2	.033	.033	.033	.016	.016	.050	.008	.008	.008	.016	.016	.016	.016	.016
1														
2	.016	.024	.024	.016	.024	.024	.024	.033	.016	.024	.024	.024	.016	.016
2	.008	.008	.033	.008	.008	.008	.008	.024	.016	.008	.008	.008	.008	.016
1	.033	.016	.016	.016	.016	.008	.008	.008	.008	.033	.016	.050	.033	.016
1														
1	.16	.008	.008	.008	.016	.008	.008	.016	.008	.008	.016	.008	.008	.008
2	.033	.023	.016	.066	.016	.016	.016	.016	.016	.050	.033	.033	.033	.016
3														
18	.024	.022	.023	.031	.019	.021	.012	.017	.018	.022	.022	.020	.020	.017
11	.026	.025	.025	.037	.024	.032	.012	.016	.026	.028	.026	.018	.024	.022
7	.021	.017	.019	.022	.016	.012	.012	.019	.012	.024	.019	.024	.019	.014

	71	72	73	74	75	76	77	78	79	80	81	82	83	84
1	.016	.033	.008	.008	.008	.016	.016	.050	.100	.016	.024	.008	.016	.034
2	.033	.033	.016	.016	.050	.050	.033	.033	.033	.041	.050	.024	.024	.100
1	.050	.016	.016	.008	.024	.016	.016	.008	.008	.008	.016	.008	.008	.008
2	.050	.016	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008	.008
1														
1	.050	.050	.066	.024	.033	.033	.166	.083	.050	.016	.016	.016	.008	.024
1														
1	.016	.016	.016	.016	.016									
2	.016	.016	.016	.016	.016									
18	.033	.025	.020	.016	.022	.024	.047	.036	.039	.017	.022	.012	.016	.032
11	.037	.024	.012	.010	.022	.022	.018	.024	.037	.018	.024	.012	.018	.035
7	.027	.027	.033	.016	.021	.033	.166	.083	.050	.016	.016	.016	.008	.024

	85	86	87	88	89	90	91	92	93	94	95	96	97	98
1	.016	.024	.033	.024	.016	.016	.016	.016	.016	.016	.016	.008	.016	.016
2	.066	.050	.024	.066	.050	.033	.041	.033	.033	.033	.033	.016	.016	.016
1	.008													
2	.008													
1														
1	.016	.008	.008	.008	.008	.008	.016	.016	.008	.008	.008			
18	.022	.027	.021	.032	.024	.019	.024	.021	.019	.019	.013	.012	.016	.016
11	.024	.037	.028	.045	.033	.034	.028	.024	.024	.024	.016	.012	.016	.016
7	.016	.008	.008	.008	.008	.008	.016	.016	.008	.008	.008			

	99	100	101	102	103	104	105	106	107	108	109	110	111	112
1	.008	.016	.016	.008	.008	.016	.008	.016	.016	.033	.016	.016	.016	.016
2	.016	.024	.024	.024	.016	.016	.016	.008	.016	.016	.008	.033	.016	.008
18	.012	.016	.020	.016	.012	.016	.012	.012	.016	.024	.012	.016	.016	.012
11	.012	.016	.020	.016	.012	.016	.012	.012	.016	.024	.012	.016	.016	.012

Retention

	1	2	3	4	5	6	7	8	9	10				
1	.200	.016	.016	.050	.050	.050	.016	.016	.008	.016				
2	.016	.016	.016	.050	.016	.016	.016	.016	.016	.016				
3	.016	.016	.016	.016	.016	.116	.016	.016	.016	.016				
4	.233	.016	.016	.016	.016	.016	.016	.016	.016	.016				
1	.400	.083	.050	.033	.066	.133	.050	.033	.033	.050				
2	.016	.033	.016	.016	.016	.033	.016	.016	.016	.033				
1	.116	.016	.016	.016	.016	.083	.033	.033	.033	.033				
2	.066	.016	.033	.016	.016	.016	.016	.016	.016	.016				
1	.150	.016	.016	.016	.016	.166	.016	.033	.033	.050				
2	.150	.016	.016	.016	.016	.016	.016	.016	.016	.016				
1	.263	.016	.016	.416	.900	.083	.016	.016	.016	.016				
1	.216	.366	.033	.033	.083	.033	.016	.016	.016	.008				
2	.108	.016	.050	.008	.016	.016	.033	.008	.016	.008				
1	.100	.050	.033	.050	.016	.033	.016	.050	.033	.016				
1	.233	.033	.016	.166	.050	.166	.016	.050	.050	.050				
2	.233	.050	.033	.033	.033	.016	.033	.016	.033	.016				
1	.050	.008	.008	.008	.008	.008	.008	.008	.008	.008				
2	.416	.166	.083	.083	.250	.050	.016	.166	.500	.333				
18	.169	.052	.026	.057	.088	.058	.020	.050	.048	.039				
11	.149	.023	.020	.060	.104	.066	.020	.020	.019	.025				
7	.200	.098	.036	.054	.065	.046	.019	.044	.093	.062				

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain %H ₂ O	Cord %H ₂ O	Body Length	Tail Length	Age
50	12	1.7104	.4435	123.5	78.285	72.135	171	159	150
50	12	1.8161	.4489	124.4	78.624	72.399	166	145	150
60	12	1.7779	.4749	121.9	78.480	72.668	166	139	150
60	12	1.8900	.4885	139.5	78.576	72.773	175	154	150
105	21	1.6564	.4145	127.7	78.483	72.242	168	142	149
110	22	1.7654	.5103	169.2	78.854	73.094	186	167	149
85	17	1.7202	.4480	125.4	78.537	72.008	169	142	149
80	16	1.5782	.3982	91.9	78.279	72.225	153	131	149
45	9								
40	8								
55	11	1.7086	.4599	121.4	78.262	71.711	170	145	149
70	14	1.5744	.3984	102.8	78.404	72.038	161	135	150
65	13	1.8175	.4766	137.8	78.591	72.555	175	153	150
95	19	1.5420	.3800	87.8	78.592	72.657	148	131	153
40	8	1.7150	.4613	116.7	78.540	72.967	170	149	149
50	10								
60	12	1.6506	.4174	111.9*	78.632	71.921	162	140	150
75	15	1.5167	.4009	91.4	78.090	72.511	153	122	150
		1.6958	.4413	119.5	78.481	72.393	166	142	149
		1.7359	.4539	127.2	78.486	72.361	169	144	149
		1.6357	.4224	108.0	78.474	72.441	161	138	150

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.183	.616	.233	.141	.150	.200	.233	.150	.124	.116	.133	.116	.150	.108
2	.250	.283	.500	.116	.116	.100	.100	.150	.100	.166	.100	.083	.091	.100
3	.141	.416	.150	.100	.216	.200	.166	.166	.116	.133	.108	.108	.100	.091
1	.333	.116	.133	.150	.100	.116	.124	.216	.183	.116	.133	.100	.100	.091
2	.091	.100	.083	.116	.100	.108	.150	.100	.100	.100	.108	.141	.116	.091
3	.516	.383	.350	.316	.266	.183	.233	.300	.316	.124	.183	.116	.166	.116
1	.108	.100	.100	.116	.116	.100	.083	.074	.100	.083	.116	.074	.083	.083
2	.116	.100	.091	.116	.100	.133	.100	.100	.100	.108	.108	.083	.116	.083
3	.416	.366	.333	.366	.316	.300	.250	.250	.300	.116	.383	.341	.100	.133
1	.083	.100	.108	.091	.100	.150	.200	.083	.108	.100	.083	.083	.083	.083
2	.133	.233	.150	.166	.166	.133	.100	.150	.133	.100	.116	.100	.083	.083
1	.133	.650	.133	.116	.116	.166	.100	.300	.116	.100	.100	.116	.108	.091
2	.133	.666	.200	.100	.233	.250	.166	.116	.100	.100	.124	.116	.116	.116
1	.116	.208	.100	.333	.166	.091	.133	.100	.150	.100	.133	.100	.116	.083
2	.166	.174	.366	.200	.183	.108	.124	.100	.150	.150	.116	.150	.091	.091
1	.250	.133	.216	.133	.133	.116	.091	.100	.083	.100	.141	.133	.083	.133
2	.300	.266	.233	.224	.100	.133	.116	.100	.100	.100	.100	.116	.100	.083
3	.100	.166	.333	.108	.116	.100	.100	.091	.091	.083	.116	.116	.100	.100
18	.198	.282	.206	.168	.155	.149	.142	.147	.137	.110	.133	.121	.105	.097
11	.215	.255	.202	.163	.158	.156	.158	.158	.152	.114	.142	.122	.108	.096
7	.171	.323	.211	.173	.149	.137	.118	.129	.112	.104	.118	.121	.102	.099

	29	30	31	32	33	34	35	36	37	38	39	40	41
1	.100	.083	.108	.083	.116	.116	.083	.083	.083				
2	.108	.091	.091	.083	.091	.100	.083	.074	.083				
3	.091	.108	.100	.083	.083	.100	.083	.091	.083				
1	.100	.100	.083	.091	.083	.091	.083	.083					
2	.083	.100	.091	.083	.083	.083	.083	.091					
3	.116	.116	.083	.383	.100	.083	.083	.091					
1	.083	.074	.083	.074	.083	.066	.066	.091	.074	.066	.074		
2	.083	.083	.083	.074	.066	.066	.066	.074	.074	.083	.083		
3	.116	.116	.183	.083	.216	.250	.150	.166	.133	.216	.166		
1	.133	.083	.083	.074	.066								
2	.100	.083	.083	.083	.083								
1	.083	.150	.166	.116	.091	.116	.083	.091	.083	.074	.083		
2	.116	.100	.150	.116	.083	.150	.083	.083	.091	.066	.066		
1	.083	.116	.100	.116	.116	.100	.083	.083	.083				
2	.091	.083	.116	.091	.100	.116	.074	.083	.083				
1	.074	.100	.083	.083	.074	.074	.083	.083	.083	.074	.083	.083	
2	.116	.116	.083	.066	.074	.074	.083	.083	.091	.083	.074	.083	
3	.100	.116	.108	.074	.066	.083	.083	.116	.083	.100	.083	.083	
18	.098	.101	.104	.103	.093	.104	.084	.091	.086	.095	.089	.083	.080
11	.101	.094	.097	.109	.097	.106	.086	.092	.088	.121	.107		
7	.094	.111	.115	.094	.086	.101	.081	.088	.085	.079	.077	.083	.080

Trial	Days	Brain Weight	Joint Weight	Body Weight	Brain $\times 10$	Cord $\times 100$	Body Length	Tail Length	Age
37	37	1.3521	.4138	105.1	78.827	72.643	161	135	145
37	37	1.6159	.4088	117.5	78.760	72.602	167	140	145
37	37	1.6251	.4138	106.5	78.825	72.909	162	137	145
35	35	1.6654	.4507	122.8	78.461	71.999	169	145	145
35	35	1.7052	.4525	156.2	78.512	71.945	176	145	145
35	35	1.6686	.4505	140.2	78.526	72.142	175	145	145
51	31	1.7587	.4530	129.5	78.242	71.655	175	149	144
38	32	1.6418	.4450	123.2	78.511	71.797	170	148	144
29	39	1.7017	.4613	137.2	78.492	71.970	179	146	144
27	27	1.6945	.4586	148.9	78.547	71.849	180	153	144
33	35	1.8603	.4765	144.0	78.234	71.752	177	148	144
39	39	1.6358	.4084	105.1	78.695	72.257	162	142	157
39	39	1.5725	.3826	100.0	78.550	72.137	155	134	157
37	37	1.6240	.4276	117.0	78.534	71.702	164	151	140
30	30	1.6725	.4349	124.0	78.694	71.878	165	146	140
34	34	1.6182	.3818	89.0	78.407	71.765	150	126	144
34	34	1.6446	.4251	115.4	78.299	71.888	167	150	144
33	33	1.7092	.4126	102.1	78.762	72.332	160	145	144
34	34	1.6692	.4309	120.2	78.537	72.067	167	143	145
34	34	1.6881	.4440	128.2	78.521	72.114	171	144	144
35	35	1.6395	.4104	107.5	78.563	71.992	160	141	146

TABLE IV-b MAZE THREE TRIALS.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Males		1 3.41 2.83 6.00	2 7.33 6.16 1.75	3 2.66 3.16 14.5	4 18.3 1.75 2.25	5 5.00 1.50 2.41	6 1.75 1.16 6.41	7 .450 .950 .633	8 1.35 .333 .166	9 .633 .183 .183	10 1.83 .166 .366	11 .350 .166 .116	12 .666 .150 .100	13 .233 .208 .116	14 .416 .116 .116
	1	3.33	.750	.566	.533	.983	.483	.550	.808	.516	.800	.174	.174	.633	.200
	2	8.33	1.00	2.61	2.41	1.25	.750	2.16	.416	1.25	1.66	.616	1.26	.200	.141
	3	30.0	1.16	.500	2.83	.500	.750	.533	.516	.333	.166	.450	.316	.333	.166
	4	1.33	7.35	1.50	1.50	2.16	1.91	.533	.683	.366	.833	.516	.350	.750	1.06
	1	6.16	1.25	2.53	.683	.291	.241	.583	.124	.141	.158	.166	.116	.183	.150
	2	6.41	2.91	2.08	.608	1.05	1.05	.116	.183	.250	.141	.133	.224	.083	.100
	3	4.16	1.00	.683	1.13	.500	.416	.150	.233	.150	.100	.100	.333	.100	.083
	4	15.7	5.50	1.75	1.10	.300	.400	1.08	.500	.533	.583	.983	.466	.333	.166
	1	4.00	10.5	5.00	4.00	3.50	2.25	.350	.500	.466	.833	.750	.650	.116	.124
	2	2.50	1.18	2.00	8.50	6.91	3.00	.600	.233	.466	.333	.916	.650	.616	.416
	3	27.9	4.50	1.58	3.25	1.64	1.26	.358	2.83	2.93	1.25	.583	.266	.116	.166
	4	8.01	3.41	1.16	.366	.500	1.40	.466	.483	.358	.133	.116	.124	.150	.116
Females	1	9.25	2.85	2.51	.916	1.38	.974	.350	.516	.783	.183	.183	.150	.166	.200
	2	8.58	9.75	1.50	1.23	1.56	1.25	.416	.183	.750	.250	.133	.133	.200	.166
	3	1.16	5.00	3.75	1.48	1.58	1.96	4.00	.333	.258	.958	.200	.133	.150	.100
	4														
Averages		18 8.28	4.07	2.77	2.93	1.83	1.52	.787	.577	.588	.596	.369	.330	.260	.222
	11	7.96	5.28	2.95	5.00	1.44	1.39	.721	.482	.417	.618	.342	.377	.288	.246
	7	8.77	5.31	2.50	2.82	2.43	1.72	.891	.725	.858	.662	.411	.242	.216	.184

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.250	.141	.266	.200	.200	.350	.200	.108	.108	.108	.083	.100	.133	.083
2	.108	.083	.100	.124	.100	.350	.116	.091	.091	.116	.116	.116	.083	.100
3	.100	.100	.116	.100	.133	.150	.091	.133	.100	.083	.083	.100	.083	.124
1	.200	.250	.116	.100	.150	.100	.100	.183	.224	.166	.133	.083	.083	.166
1	.550	.500	.150	.166	.133	.250	.116	.166	.216	.124	.116	.100	.116	.150
2	.750	.450	.250	.200	1.80	.500	.300	.166	.116	.100	.083	.100	.133	.166
3	.800	.116	.133	.333	.216	.116	.116	.133	.100	.108	.133	.100	.100	.116
1	.133	.100	.100	.083	.083	.083	.100	.108	.108	.108	.083	.100	.083	.133
2	.100	.116	.100	.200	.100	.108	.116	.133	.116	.100	.074	.083	.083	.083
1	.900	.074	.124	.074	.083	.083	.083	.083	.083	.066	.083	.083	.083	.074
2	.150	.124	.124	.108	.100	.100	.108	.166	.116	.333	.083	.091	.100	.083
1	.133	.116	.116	.083	.116	.083	.083	.100	.083	.083	.083	.091	.116	.083
2	.316	.316	2.25	.800	.450	.683	.250	1.24	.500	.350	.133	.166	.283	.116
1	.133	.083	.183	.183	.100	.100	.100	.116	.100	.100	.133	.166	.133	.083
2	.166	.083	.083	.116	.100	.133	.116	.100	.083	.100	.116	.150	.116	.083
1	.124	.116	.083	.483	.100	.108	.200	.100	.100	.233	.166	.233	.116	.133
2	.133	.166	.150	.116	.083	.100	.133	.183	.116	.100	.100	.116	.116	.083
1	.108	.100	.100	.100	.083	.083	.100	.108	.158	.100	.083	.083	.100	.083
18	.286	.168	.252	.198	.266	.185	.134	.189	.139	.137	.104	.114	.114	.107
11	.367	.186	.143	.153	.281	.199	.131	.133	.125	.128	.097	.096	.098	.116
7	.159	.140	.423	.268	.147	.184	.140	.278	.162	.152	.116	.143	.140	.094

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.083	.083	.100	.091	.116	.083	.100	.116	.100	.083	.100	.083	.083	.083
2	.083	.100	.100	.091	.266	.100	.116	.116	.100	.100	.083	.083	.083	.083
3	.124	.141	.108	.083	.083	.083	.083	.083	.166	.083	.123	.100	.083	.083
1	.108	.100	.116	.100	.083	.083	.083	.083	.100	.116	.100	.150	.116	.116
1	.100	.100	.116	.200	.100	.100	.108	.100	.116	.100	.100	.083	.083	.083
2	.116	.100	.100	.083	.083	.083	.074	.074	.083	.083	.091	.100	.083	.083
3	.200	.091	.124	.116	.150	.083	.124	.108	.083	.083	.116	.083	.083	.083
1	.083	.074	.066	.066	.074	.083	.116	.083	.074	.074	.066	.074	.074	.074
2	.083	.083	.100	.083	.100	.116	.083	.083	.116	.116	.100	.116	.100	.083
1	.083	.083	.100	.100	.083	.066	.074	.074	.083	.074	.083	.083	.074	.066
2	.083	.083	.091	.100	.116	.100	.091	.083	.083	.116	.066	.066	.091	.116
1	.083	.100	.074	.083	.091	.083	.083	.083	.083	.083	.083	.091	.083	.083
2	.141	.183	.083	.200	.100	.083	.100	.083	.083	.083	.083	.066	.100	.083
1	.100	.116	.083	.083	.116	.100	.100	.083	.083	.083	.091	.083	.066	.083
2	.108	.100	.083	.083	.100	.083	.108	.083	.083	.116	.083	.083	.074	.074
1	.150	.216	.133	.100	.100	.091	.133	.216	.083	.083	.100	.083	.074	.074
2	.100	.083	.083	.083	.116	.083	.083	.074	.100	.083	.124	.083	.100	.083
1	.083	.100	.116	.083	.100	.083	.083	.083	.083	.083	.083	.083	.083	.083
18	.106	.107	.099	.102	.109	.088	.096	.094	.094	.091	.093	.088	.085	.084
11	.104	.094	.102	.101	.114	.089	.095	.091	.100	.093	.094	.092	.086	.086
7	.109	.128	.093	.103	.103	.086	.098	.100	.085	.087	.092	.081	.082	.080

	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	.083	.083	.083	.091	.091	.091	.083	.083	.100	.083	.066	.083	.083	.083
2	.100	.100	.083	.083	.083	.083	.166	.100	.166	.100	.083	.100	.091	.091
3	.074	.074	.083	.083	.083	.083	.083	.083	.083	.074	.074	.074	.066	.074
1	.116	.083	.083	.083	.083	.083	.100	.083	.083	.083	.100	.083	.100	.100
1	.083	.083	.083	.083	.100	.083	.100	.083	.083	.083	.083	.083	.083	.083
2	.083	.091	.083	.074	.074	.074	.116	.083	.083	.083	.083	.091	.083	.100
3	.083	.100	.083	.083	.091	.074	.083	.083	.083	.074	.074	.083	.083	.133
1	.074	.074	.074											
2	.116	.108	.091											
1	.083	.133	.100	.083	.283	.066	.133	.066	.133	.074	.083	.083	.083	.083
2	.150	.100	.083	.100	.166	.233	.083	.074	.116	.133	.083	.091	.074	.074
1	.100	.100	.100	.083	.091	.100	.083	.083	.083	.083	.083	.083	.083	.083
2	.066	.116	.100	.083	.091	.083	.100	.083	.066	.083	.083	.116	.083	.083
1	.083	.083	.083	.083	.083	.083	.083	.083	.083	.083	.091	.083	.083	.083
2	.074	.083	.083	.083	.074	.083	.074	.083	.083	.083	.166	.100	.074	.074
1	.083	.074	.083	.083	.083	.100	.083	.074	.083	.083	.083	.100	.083	.100
2	.083	.083	.083	.083	.083	.083	.083	.074	.091	.083	.100	.083	.083	.083
1	.083	.083	.074	.083	.083	.083	.074	.074	.133	.083	.083	.074	.083	.083
18														
11	.089	.091	.085	.084	.102	.092	.095	.080	.097	.085	.088	.088	.082	.088
	.095	.093	.084	.084	.117	.096	.105	.082	.103	.087	.081	.085	.082	.091
7	.081	.088	.086	.083	.084	.087	.082	.079	.088	.083	.098	.092	.081	.084

	57	58	59	60	61	62	63	64	65	66	67	68	69	70
1	.083	.074	.083	.074	.066	.116	.116	.083	.083	.083	.083	.100	.083	.091
2	.083	.100	.083	.083	.074	.074	.074	.083	.083	.083	.083	.083	.083	.083
3	.074	.074	.074	.100	.066	.083	.066	.083	.100	.066	.074	.074	.074	.083
1	.083	.083	.083	.083	.083	.100	.083	.083	.100	.100	.100	.083	.100	.083
1	.083	.083	.083	.100	.083	.083	.100	.083	.083	.083	.074	.083	.083	
2	.083	.083	.083	.083	.074	.083	.083	.083	.083	.083	.083	.083	.074	
3	.100	.083	.100	.083	.083	.100	.083	.083	.100	.100	.100	.083	.083	
1	.083													
2	.083	.083	.133	.083	.066	.074	.074	.074	.074	.074	.074	.074	.074	
1	.074	.083	.133	.100	.074	.066	.083	.083	.083	.074	.083	.074	.074	
1	.083	.074	.083	.083	.100	.100	.083	.074	.074	.116	.074	.083	.083	.083
2	.083	.083	.083	.083	.083	.083	.083	.074	.083	.074	.066	.083	.083	.074
1	.100	.083	.100	.083	.083	.091	.083							
2	.074	.083	.083	.091	.074	.074	.074							
1	.100	.083	.083	.091	.100	.108	.100	.083	.083	.091	.116	.100	.100	.083
2	.133	.091	.124	.100	.074	.100	.083	.091	.083	.100	.083	.116	.100	.083
1	.083	.083	.083	.074	.100	.083	.083	.083	.083	.083	.083	.083	.083	
18	.087	.082	.093	.087	.080	.087	.084	.081	.084	.085	.082	.085	.084	.082
11	.082	.082	.095	.087	.074	.084	.084	.082	.086	.081	.081	.081	.080	.085
7	.093	.082	.091	.086	.087	.091	.084	.081	.081	.092	.084	.093	.089	.080

Retention.

	71	72	73	74	75	76	77	78	1	2	3	4	5	6
1	.100	.083							.300	.150	.166	.116	.100	.083
2	.083	.083							.133	.116	.100	.116	.100	.083
3	.083	.074							.250	.183	.250	.100	.100	.100
1	.083	.083	.083	.083	.083	.083	.083	.083	.350	.166	.116	.166	.100	.100
									.116	.116	.116	.116	.083	.116
									.500	.250	.250	.083	.100	.083
									1.16	1.08	.166	.250	.150	.116
									.750	.500	.150	.183	.083	.066
									.150	.150	.141	.083	.083	.083
1	.083	.083	.066	.083	.083				.183	.100	.200	.100	.083	.100
2	.074	.074	.083	.074	.083				.250	.133	.108	.083	.083	.166
									.300	.208	.166	.083	.083	.083
									.250	.133	.116	.283	.100	.083
1	.091	.100							.133	.108	.116	.100	.083	.083
2	.083	.083							.166	.116	.216	.083	.083	.150
									.250	.183	.116	.083	.083	.083
18	.085	.082	.077	.080	.083	.083	.083	.083	.32	.218	.155	.126	.093	.098
11	.087	.080	.083	.083	.083	.083	.083	.083	.412	.279	.161	.134	.099	.092
7	.082	.085	.074	.078	.083				.218	.140	.148	.116	.085	.106

Trial	Days	Brain Weight	Cord Weight	Body Weight	Brain %H ₂ O	Cord %H ₂ O	Body Length	Tail Length	Age
66	22	1.6707	.4388	108.9	78.482	71.968	170	145	140
63	21	1.6876	.4476	116.2	78.512	71.559	172	146	140
66	22	1.8095	.4902	131.5	78.723	72.113	178	152	140
45	15	1.6716	.4319	105.9	78.454	72.262	162	145	149
57	19	1.7482	.4715	120.5	78.612	72.492	177	148	149
63	21								
42	14								
39	15	1.7948	.4790	137.5	78.694	72.442	175	149	142
45	15	1.7340	.4566	109.4	78.685	72.606	166	138	142
51	17	1.7214	.4408	132.5	78.651	72.481	173	142	149
69	23	1.7013	.4254	106.4	78.551	72.543	164	137	149
57	19	1.7245	.4275	100.4	78.602	72.701	163	122	140
60	20	1.6846	.4121	110.7	78.617	72.482	164	146	140
63	21	1.6590	.3837	100.9	78.571	71.722	155	141	142
60	20	1.6859	.4039	101.2	78.711	72.617	158	139	142
72	24	1.6846	.3985	95.9	78.814	72.734	153	137	142
72	24	1.4451	.3354	73.4	78.956	74.776	145	122	142
36	12	1.6129	.4044	98.1	78.572	72.650	158	137	149
57		1.6897	.4266	108.7	78.624	72.509	164	140	143
55		1.7265	.4513	117.6	78.571	72.274	170	144	144
60		1.6423	.3950	97.2	78.691	72.811	156	134	142

TABLE IV-c MAZE FIVE TRIALS

Males														
1	10.0	2.88	2.90	4.16	2.66	1.25	1.41	.500	.916	.583	.683	.250	.200	.650
2	4.16	4.11	3.75	2.58	1.66	1.01	.383	.150	.250	.500	.266	.116	.100	.174
3	29.1	1.41	1.33	1.16	.533	1.33	.750	1.08	1.50	2.25	1.01	.183	.250	.266
4	8.75	11.0	1.33	9.25	.750	2.41	1.38	.716	1.91	2.16	1.35	.533	.400	.333
1	1.25	1.58	.650	1.01	12.5	.333	.358	.400	.400	.200	.316	.233	.166	.250
2	9.15	.916	.950	4.83	.850	.533	.466	.416	1.18	.583	.066	.166	.366	.400
1	2.75	1.08	.933	.400	.750	.333	.433	1.18	.266	.133	.166	.200	.216	.233
2	4.91	1.20	.616	.650	.166	.241	1.01	.183	.166	.183	.133	.316	.366	.183
1	4.90	.100	1.46	1.66	4.60	.541	.200	.183	.150	.033	.100	.116	.166	.100
2	9.08	2.51	1.83	1.16	1.08	.416	.583	.141	.150	.141	.500	.583	.583	.350
1	14.4	50.3	15.4	2.36	3.36	3.36	.666	2.50	1.65	1.98	.283	.166	.250	.166
Females														
1	17.8	6.88	8.16	18.3	1.50	.500	1.66	.750	1.50	.383	.383	.583	1.13	.666
2	13.50	2.73	.250	.166	.100	.383	.583	.166	.150	.216	.750	.366	.166	.166
1	10.5	14.4	1.56	.516	1.08	.333	.250	.100	.066	.166	.500	.333	.283	.233
1	12.5	4.91	4.16	1.50	2.40	.150	.100	.250	.100	.316	.116	.183	.166	.100
2	10.9	.283	1.45	2.13	1.75	.316	.133	.266	.366	.650	.333	.116	.350	.883
1	5.16	14.7	1.00	1.05	2.58	.333	.250	.283	.116	.108	.150	.183	.116	.100
2	2.50	.550	19.6	4.50	2.75	.466	.550	.374	.816	.324	.141	.224	.166	.166
Averages														
18	8.96	6.75	3.74	3.18	2.28	.789	.620	.535	.647	.606	.402	.269	.302	.301
11	8.95	7.00	2.83	2.65	2.63	1.06	.694	.677	.776	.795	.443	.260	.278	.282
7	8.96	6.35	5.16	4.02	1.73	.370	.50	.312	.444	.309	.339	.284	.216	.330

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.483	.333	.833	.191	.266	.174	.133	.116	.100	.100	.133	.100	.091	.083
2	.100	.233	.366	.450	.383	.224	.116	.100	.091	.091	.091	.083	.100	.100
3	.216	.066	.200	.150	.116	.116	.150	.100	.100	.100	.100	.150	.116	.200
4	.166	.333	.133	.100	.100	.116	.166	.100	.083	.083	.091	.091	.100	.091
1	.416	.108	.183	.333	.166	.183	.100	.150	.150	.233	.100	.091	.024	.083
2	.250	.166	.200	.200	.133	.116	.233	.166	.083	.183	.133	.133	.133	.083
1	.150	.116	.108	.083	.183	.166	.133	.083	.100	.116	.216	.083	.108	.166
2	.566	.150	.116	.100	.133	.100	.083	.133	.083	.100	.083	.074	.074	.074
1	.100	.100	.183	.283	.116	.100	.083	.083	.083	.083	.083	.083	.074	.074
2	.600	.216	.166	.400	.150	.616	.083	.283	.116	.083	.166	.083	.083	.083
1	.141	.124	.450	.500	.400	.750	.166	.166	.150	.116	.100	.100	.091	.116
1	.666	.333	.183	.300	.216	.200	.166	.116	.116	.116	.108	.166	.100	.083
2	.183	.166	.150	.083	.100	.083	.100	.133	.083	.200	.091	.074	.074	.124
1	.300	.083	.100	.166	.100	.083	.166	.133	.083	.100	.166	.200	.150	.250
1	.100	.100	.091	.150	.216	.133	.074	.074	.074	.074	.083	.074	.124	.074
2	.258	.200	.450	.400	.233	.208	.133	.108	.150	.183	.250	.083	.083	.100
1	.224	.091	.091	.100	.083	.100	.083	.100	.100	.100	.091	.116	.133	.283
2	.183	.074	.083	.133	.116	.124	.108	.100	.124	.116	.166	.191	.100	.091
18	.283	.166	.238	.229	.178	.199	.126	.124	.103	.120	.125	.109	.097	.119
11	.289	.176	.285	.253	.195	.241	.131	.134	.103	.117	.117	.097	.090	104
7	.273	.149	.164	.190	.152	.133	.118	.109	.104	.127	.136	.129	.109	.143

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.083	.100	.108	.141	.108	.141	.300	.100	.108	.108	.100	.100	.083	.100
2	.100	.100	.091	.100	.116	.091	.091	.091	.091	.083	.091	.166	.083	.083
3	.150	.416	.300	.183	.191	.166	.150	.091	.083	.100	.100	.100	.083	.083
4	.083	.083	.108	.100	.108	.116	.100	.083	.100	.091	.083	.100	.083	.083
1	.091	.083	.083	.100	.100	.100	.083	.100	.083	.083	.083	.100	.100	.100
2	.083	.083	.166	.116	.116	.091	.091	.116	.108	.083	.116	.091	.083	.083
1	.133	.133	.083	.116	.100	.100	.100	.133	.100	.100	.166	.133	.091	.100
2	.083	.074	.083	.083	.083	.083	.116	.083	.091	.083	.083	.083	.074	.074
1	.083	.083	.083	.083	.083	.074	.083	.074	.074	.066	.083	.074	.091	.100
2	.083	.116	.083	.083	.083	.083	.083	.083	.100	.083	.083	.083	.083	.083
1	.091	.083	.150	.433	.116	.250	.166	.083	.200	.100	.083	.183	.083	.100
1	.083	.083	.083	.100	.100	.116	.100	.150	.116	.108	.116	.100	.083	.083
2	.083	.150	.083	.083	.083	.150	.083	.083	.083	.074	.100	.200	.083	.083
1	.233	.133	.150	.124	.133	.183	.133	.100	.100	.116	.100	.100	.083	.083
1	.074	.083	.083	.083	.083	.083	.100	.074	.074	.074	.074	.074	.083	.100
2	.083	.083	.083	.083	.083	.083	.083	.074	.083	.116	.074	.083	.083	.083
1	.166	.200	.083	.100	.083	.083	.150	.083	.083	.100	.100	.083	.083	.083
2	.108	.108	.100	.183	.133	.100	.083	.083	.083	.083	.100	.083	.083	.100
18	.105	.121	.111	.127	.105	.116	.116	.093	.097	.091	.096	.107	.084	.089
11	.096	.123	.121	.139	.109	.117	.123	.094	.103	.089	.097	.110	.085	.089
7	.118	.120	.095	.108	.099	.114	.104	.092	.088	.095	.094	.103	.083	.087

	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	.083	.083	.083	.091	.091	.100	.116	.100	.091	.091	.100	.083	.091	.083
2	.100	.083	.083	.074	.083	.116	.083	.083	.083	.083	.083	.083	.083	.083
3	.083	.116	.083	.074	.083	.083	.074	.083	.100	.083	.083	.100	.100	.083
4	.091	.083	.083	.100	.074	.074	.074	.083	.083	.083	.083	.083	.083	.083
1	.083	.083	.083	.083	.083	.083	.133	.083	.074	.074	.074	.066	.066	.083
2	.083	.083	.083	.083	.091	.083	.083	.083	.083	.083	.083	.083	.083	.116
1	.116	.083	.116	.083	.083	.083	.100	.100	.083	.133	.074	.100	.116	.083
2	.074	.083	.074	.083	.074	.074	.083	.083	.083	.074	.074	.074	.116	.083
1	.083	.083	.091	.083	.083	.083	.083	.083						
2	.083	.083	.116	.083	.091	.083	.083	.083						
1	.083	.116	.116	.083	.083	.083	.100	.116	.074	.074	.074	.083	.083	
1	.083	.083	.091	.100	.083	.083	.083	.083	.083	.100	.091	.108	.100	.100
2	.091	.083	.083	.083	.116	.074	.083	.083	.066	.066	.083	.083	.100	.074
1	.116	.116	.108	.083	.083	.083	.083	.116	.083	.116	.100	.100	.116	.083
1	.083	.083	.083	.083	.083	.083	.083	.083						
2	.083	.083	.083	.100	.083	.083	.083	.116						
1	.100	.083	.083	.083	.100	.083	.083	.091	.083	.083	.083	.100	.100	.083
2	.083	.100	.083	.083	.100	.083	.083	.083	.116	.100	.100	.100	.100	.100
18	.088	.087	.090	.085	.087	.084	.088	.090	.085	.088	.084	.089	.095	.087
11	.087	.089	.091	.083	.083	.085	.092	.089	.083	.086	.080	.083	.091	.087
7	.091	.090	.087	.087	.092	.081	.083	.093	.086	.093	.091	.098	.103	.088

	57	58	59	60	61	62	63	64	65	66	67	68	69	70
1	.083	.100	.083	.083										
2	.083	.083	.083	.083										
3	.083	.116	.100	.083										
4	.083	.083	.083	.100										
1	.083	.083	.083	.083	.074	.083	.083	.074	.074	.074	.083	.074	.083	.083
2	.116	.083	.200	.074	.083	.100	.100	.100	.083	.100	.083	.083	.083	.116
1	.100	.116	.133	.183	.100	.100	.083	.083	.100	.083	.083	.116	.100	.083
2	.100	.100	.083	.083	.074	.074	.066	.116	.083	.083	.083	.100	.100	.083
1														
2	.083	.083	.083	.083	.100	.083	.083	.083	.100	.091	.091	.091	.100	.083
1	.083	.083	.083	.083	.083	.074	.083	.074	.100	.083	.083	.074	.083	.083
1	.133	.083	.091	.091	.100	.100	.100	.166	.100	.100	.083	.100	.100	.100
1														
2	.100	.116	.100	.150	.083	.100	.083	.083	.083	.083	.083	.091	.083	.116
1	.100	.116	.233	.116	.083	.091	.091	.083	.083	.083	.083	.083	.083	.083
18	.094	.097	.110	.096	.086	.089	.085	.095	.089	.086	.083	.090	.090	.092
11	.091	.097	.106	.096	.082	.089	.083	.093	.085	.085	.083	.093	.091	.091
7	.099	.096	.118	.104	.089	.089	.088	.097	.093	.088	.094	.087	.089	.093

	71	72	73	74	75	76	77	78	79	80	81	82	83	84
1	.108	.083	.083	.083	.083	.166	.083	.083	.083	.083	.123	.083	.074	.074
2	.100	.083	.083	.116	.110	.166	.083	.074	.074	.133	.116	.083	.074	.074
1	.091	.116	.083	.083	.083	.074	.100	.091	.083	.083	.083	.083	.091	.083
2	.074	.100	.074	.091	.091	.083	.083	.100	.083	.083	.074	.074	.074	.083
1														
1	.083	.091	.133	.083	.083	.083	.083	.116	.100	.083	.091	.083	.033	.083
1														
1	.100	.100	.091	.100	.100									
2	.083	.083	.083	.083	.083									
18	.091	.093	.090	.091	.089	.114	.086	.092	.084	.093	.099	.081	.079	.079
11	.093	.095	.080	.093	.089	.122	.087	.087	.080	.095	.101	.080	.078	.078
7	.088	.091	.103	.088	.088	.083	.083	.116	.100	.083	.091	.083	.083	.083

	85	86	87	88	89	90	91	92	93	94	95	96	97	98
1	.083	.083	.083	.074	.074	.100	.083	.083	.083	.100	.083	.083	.074	.083
2	.074	.083	.074	.100	.091	.091	.083	.100	.091	.083	.083	.100	.066	.074
1	.083													
2	.074													
1	.083													
2	.074													
1														
2														
1	.083	.083	.083	.100	.100	.100	.083	.100	.083	.083	.091			
18	.079	.083	.080	.091	.088	.097	.083	.094	.085	.088	.085	.091	.070	.078
11	.078	.083	.078	.087	.082	.095	.083	.091	.087	.091	.083	.091	.070	.078
7	.083	.083	.083	.100	.100	.100	.083	.100	.083	.083	.091

	113	114	115	116	117	118	119	120	121	122	123	124	125
1	.085	.085	.100	.085	.085	.085	.091	.085	.085	.085	.085	.091	.085
2	.091	.091	.085	.085	.085	.085	.085	.085	.085	.085	.085	.074	.085
18	.087	.087	.091	.085	.085	.085	.087	.085	.085	.085	.085	.082	.085
11	.087	.087	.091	.085	.085	.085	.087	.087	.085	.085	.085	.082	.085

Retention

	1	2	3	4	5	6	7	8	9	10					
1	.150	.100	.100	.100	.100	.083	.100	.100	.116	.083					
2	.216	.116	.116	.116	.116	.083	.083	.083	.083	.083					
3	1.36	.150	.116	.116	.100	.150	.166	.124	.124	.124					
4	2.30	.250	.133	.166	.150	.116	.100	.083	.100	.100					
1	.916	.166	.091	.100	.150	.383	.083	.116	.100	.124					
2	.083	.083	.100	.083	.083	.100	.091	.091	.091	.100					
1	.166	.100	.100	.108	.108	.103	.100	.100	.100	.100					
3	.100	.166	.116	.100	.100	.083	.083	.083	.083	.083					
1	.208	.250	.250	.150	.116	.116	.108	.083	.116	.100					
2	.150	.316	.150	.116	.123	.083	.100	.116	.083	.083					
1	.450	.083	.166	.250	.200	.083	.116	.133	.333	.116					
1	.300	.216	.116	.133	.366	.100	.166	.150	.100	.100					
2	.150	.100	.100	.083	.074	.083	.100	.074	.083	.100					
1	.100	.091	.116	.100	.100	.091	.091	.133	.083	.083					
1	.216	.166	.133	.124	.141	.166	.116	.116	.124	.108					
2	1.41	.166	.093	.450	.416	.533	.283	.200	.266	.133					
1	.166	.500	.166	.150	.116	.091	.091	.091	.100	.091					
2	.433	.250	.116	.116	.100	.116	.166	.133	.083	.074					
18	.493	.181	.126	.142	.148	.142	.119	.111	.120	.099					
11	.554	.161	.130	.127	.123	.125	.102	.101	.120	.099					
7	.396	.212	.118	.165	.187	.168	.144	.128	.119	.096					

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain Wt. 0	Cord Wt. 0	Body Length	Tail Length	Age
50	12	1.7104	.4425	123.5	78.285	72.135	171	139	150
60	12	1.8161	.4489	124.4	78.624	72.399	166	145	150
60	12	1.7779	.4749	121.9	78.480	72.668	166	139	150
60	12	1.8900	.4885	139.5	78.576	72.773	175	154	150
80	16	1.6564	.4143	127.7	78.483	72.242	168	142	149
75	15	1.7654	.5103	169.2	78.854	73.094	186	167	149
85	17	1.7202	.4480	125.4	78.537	72.008	169	142	149
85	17	1.5782	.5982	91.9	78.279	72.225	153	131	149
50	10								
50	10								
55	11	1.7086	.4599	121.4	78.262	71.711	170	145	149
55	11	1.5744	.3984	102.8	78.404	72.038	161	135	150
55	11	1.8175	.4766	137.8	78.591	72.555	175	153	150
95	19	1.5420	.3800	87.8	78.592	72.657	148	131	153
50	10	1.7130	.4613	116.7	78.540	72.967	170	149	149
50	10								
70	14	1.6506	.4174	111.9	78.632	71.921	162	140	150
70	14	1.5167	.4009	91.4	78.090	72.511	153	122	150
		1.6958	.4413	119.5	78.481	72.393	166	142	149
		1.7359	.4539	127.2	78.486	72.361	169	144	149
		1.6357	.4224	108.0	78.474	72.441	161	138	150

TABLE V-a INCLINED PLANE BOX WITH OTHER PROBLEMS ONE TRIAL.

		1 2 3 4 5 6 7 8 9 10 11 12 13 14													
Males		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	10.7	3.66	1.36	2.75	4.00	.833	.066	1.33	1.25	.433	.024	.116	.066	.066
2	3	.300	1.03	.600	.500	4.00	.183	.083	1.06	2.98	.883	.100	.183	.183	.066
3		.666	.583	3.50	9.61	1.00	.100	1.12	1.50	3.00	.108	.216	.216	.200	.333
1	2	6.16	8.83	3.36	.466	1.21	1.71	.433	3.00	.733	1.38	3.05	3.18	2.91	1.28
2	3	1.08	11.0	1.91	.291	.500	.166	.233	.033	.233	1.03	.383	.283	1.50	1.50
3		1.58	6.00	3.00	.333	1.66	.250	.416	3.86	1.01	1.16	.700	.750	.500	.583
1	2	12.4	1.06	.416	1.00	1.75	.500	.333	.391	.850	.983	.700	4.00	.250	.300
2	3	4.91	1.50	3.16	1.08	.333	1.13	1.16	.400	.750	.333	.224	.166	.066	.066
3		3.66	.550	1.16	.316	.500	.600	1.50	.283	.150	.850	.108	.250	.133	.558
1	2	.500	2.28	.566	.416	.441	.716	.700	.600	1.38	.391	.091	.383	.291	.050
2		.916	.950	.533	2.23	1.31	.350	.833	1.41	.566	.650	.150	1.38	.274	.208
1	2	.333	.350	5.50	1.31	.816	.066	.166	.666	.633	1.39	.666	.300	.700	.983
2		5.21	4.40	4.33	5.33	1.58	1.33	.683	1.00	.433	10.7	.183	.200	.250	.500
1	2	.833	23.0	13.2	.116	.350	.333	2.60	1.25	.183	1.73	.250	.283	.333	.341
2		4.16	2.32	2.83	1.11	.383	1.25	1.50	2.41	.316	1.01	.150	.100	.150	.116
1	2	1.50	2.75	.250	2.15	1.28	.350	2.25	1.30	.133	.950	1.29	.333	.600	.250
2		13.2	.333	.400	.216	.583	.316	.766	1.73	.166	.116	1.48	2.33	.124	.200
3		2.00	3.0	.333	3.27	.500	.200	.300	.766	.266	.100	1.66	1.16	.183	.166
Females															
Averages		18	4.08	2.57	1.80	1.23	.576	.841	1.27	.890	1.34	.640	.867	.484	.420
	11	3.89	3.40	1.77	1.72	1.51	.594	.625	1.26	1.26	.745	.522	.991	.579	.455
	7	3.89	5.16	3.83	1.92	.784	.549	1.18	1.30	.304	2.28	.825	.672	.334	.365

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	.350	.116	.365	.266	.150	.116	.083	.033	.033	.016	.024	.016	.083	.016
2	.250	.416	.083	.383	.300	.033	.050	.083	.116	.024	.058	.050	.016	.024
3	.133	.100	.100	.133	.166	.133	.033	.116	.133	.083	.024	.033	.083	.083
1	1.38	.400	.233	.066	.066	.050	.333	.033	.033	.083	.250	.066	.083	.066
2	.516	.283	.083	.300	.300	.200	.050	.291	.016	.024	.100	.116	.066	.016
3	.283	.383	.066	.066	.050	.050	.233	.166	.233	.050	.083	.024	.033	.183
1	.350	.200	.150	.066	.050	.016	.016	.016	.033	.016	.016	.016	.016	.016
2	.233	.116	.033	.083	.083	.033	.016	.016	.016	.066	.016	.083	.024	.016
3	.383	.150	.283	.083	.074	.024	.033	.150	.024	.150	.050	.058	.033	.050
1	.166	.083	.166	.083	.600	.033	.066	.016	.400	.016	.166	.150	.024	.016
2	.058	.500	.200	.250	.516	.116	.074	.200	.416	.200	.033	.033	.016	.100
1	.183	.166	.066	.133	.133	.033	.150	.116	.100	.083	.166	.016	.016	.083
2	.074	.083	.050	.383	.433	.416	.050	.050	.066	.041	.050	.041	.024	.183
1	.666	.183	.750	.024	.166	.150	.033	.066	.033	.050	.024	.024	.016	.016
2	.333	.083	.116	.233	.116	.166	.150	.016	.083	.024	.050	.041	.050	.058
1	.150	.266	.133	.066	.083	.016	.050	.083	.833	.066	.016	.016	.041	.024
2	1.75	.166	.116	.091	.333	.316	.033	.016	.100	.083	.250	.050	.083	.050
3	.133	.150	.250	.150	.583	.033	.016	.050	.366	.016	.016	.074	.024	.083
18	.410	.218	.180	.158	.233	.107	.081	.080	.168	.060	.077	.050	.040	.060
11	.372	.249	.160	.161	.214	.073	.089	.095	.132	.066	.074	.058	.043	.053
7	.469	.156	.211	.154	.263	.161	.068	.056	.225	.051	.081	.037	.036	.071

	29	30	31	32	33	34	35	36	37	38	39	40	41
1	.016	.050	.024	.066	.024	.024	.024	.024	.033				
2	.024	.016	.016	.016	.016	.016	.016	.016	.024				
3	.016	.050	.024	.016	.016	.016	.024	.033	.033				
1	.033	.033	.041	.016	.033	.016	.016	.024					
2	.083	.024	.100	.033	.016	.033	.016	.033					
3	.024	.016	.150	.050	.050	.024	.033	.033					
1	.083	.033	.050	.016	.016	.016	.016	.033	.033	.033	.024		
2	.066	.033	.033	.016	.016	.024	.016	.066	.033	.050	.016		
3	.016	.033	.050	.033	.016	.016		.266	.216	.024	.024		
1	.024	.033	.033	.033	.066								
2	.033	.050	.033	.016	.033								
1	.016	.066	.033	.024	.083	.116	.033	.041	.016	.024	.016		
2	.024	.033	.033	.024	.024	.016	.033	.024	.016	.016	.033		
1	.050	.116	.033	.166	.033	.016	.033	.033	.016				
2	.033	.016	.016	.016	.016	.016	.016	.033	.033				
1	.283	.016	.016	.016	.016	.083	.016	.016	.024	.016	.016	.050	
2	.250	.250	.150	.183	.016	.050	.050	.016	.066	.083	.024	.016	.016
3	.016	.016	.116	.016	.016	.016	.050	.016	.033	.033	.024	.016	.016
18	.060	.049	.052	.042	.028	.031	.041	.041	.030	.024	.022	.016	.027
11	.038	.033	.050	.028	.027	.020	.047	.053	.031	.035	.021		
7	.096	.073	.056	.063	.029	.044	.033	.025	.029	.034	.022	.016	.027

Trials	Days	Brain Weight	Cereb. Weight	Body Weight	Brain $\frac{\text{g}}{\text{cm}^3}$	Cereb. $\frac{\text{g}}{\text{cm}^3}$	Body Length	Tail Length	Age
25	25	1.6521	.4138	105.1	78.827	72.645	161	133	145
29	29	1.6159	.4088	117.5	78.760	72.602	167	140	145
31	31	1.6251	.4138	106.5	78.825	72.909	162	137	145
34	34	1.6654	.4507	122.8	78.461	71.999	169	145	145
32	32	1.7052	.4523	136.2	78.512	71.945	176	145	145
35	36	1.6686	.4505	140.2	78.526	72.142	175	145	145
21	22	1.7387	.4530	129.5	78.242	71.655	175	149	144
25	23	1.6418	.4450	123.2	78.511	71.797	170	148	144
28	28	1.7017	.4615	137.2	78.492	71.970	179	146	144
28	28	1.6945	.4586	148.9	78.347	71.849	180	153	144
28	28	1.8603	.4765	144.0	78.234	71.752	177	148	144
39	39	1.6358	.4084	105.1	78.695	72.257	162	142	157
31	31	1.5725	.3826	100.0	78.550	72.137	155	134	157
26	26	1.6420	.4276	117.0	78.534	71.702	164	151	140
21	21	1.6723	.4349	114.0	78.694	71.878	165	146	140
27	27	1.6182	.3818	89.0	78.407	71.765	150	126	144
41	41	1.6446	.4251	115.4	78.299	71.888	167	150	144
29	29	1.7092	.4126	102.1	78.762	72.322	160	143	144
30	30	1.6692	.4309	120.2	78.537	72.067	167	143	145
28	28	1.6881	.4440	128.2	78.521	72.114	171	144	144
32	32	1.6595	.4104	107.5	78.565	71.992	160	141	145

TABLE V-b INCLINED PLANE BOX THREE TRIALS.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Males		1	3.80	1.08	1.40	1.68	1.65	.166	.166	.200	.233	.666	.324	1.66	1.61	4.16
		2	.250	.333	.583	.466	1.63	.433	.333	.800	.500	.400	.083	.058	.566	.424
		3	.166	.166	1.00	.166	.500	1.15	.416	1.26	.333	.283	.183	1.33	.816	.250
		1	.983	.583	1.10	.600	.300	.316	.108	.716	.150	.300	.250	.116	.183	.041
		1	.283	.450	.283	1.68	2.30	3.88	.966	1.68	2.66	.350	.666	.833	.166	.133
		2	.866	.450	.441	.333	1.01	1.10	.466	.550	.166	.600	.083	.058	.650	.383
		3	.850	1.20	1.48	.350	.683	1.41	.666	.166	.283	.233	.450	.100	.566	.100
		1	.050	.358	.500	2.40	2.71	2.75	.650	.266	.116	.350	.116	.108	.108	.266
Females		2	.150	.250	.383	.833	1.16	.808	.066	.250	.250	.950	.383	.166	.316	.024
		1	.283	.416	.366	.366	.333	.450	.066	.166	.333	.941	3.70	.716	.941	.300
		2	1.16	.200	1.06	1.06	.983	.833	.100	.516	1.17	.300	.450	.550	.300	.124
		1	.500	.916	1.50	.916	.950	.200	.750	.883	.233	.666	.150	.316	.500	.041
Averages		2	.416	.750	1.00	.083	.450	.283	.400	.250	.250	.183	.200	.516	.916	
		1	3.16	.783	.916	1.10	3.41	.616	2.33	1.17	4.00	.100	.400	.050	.983	.066
		2	3.41	.883	.150	1.01	.708	.333	.500	.333	1.40	.416	.500	.074	.116	.033
		1	.123	1.11	2.26	.500	.916	1.18	.016	.533	.183	.500	.116	.124	.133	.033
		2	1.28	.916	1.16	.791	.683	.200	.166	4.02	.883	1.05	5.83	.024	.316	.166
		1	.600	.216	2.20	.350	.366	.516	.133	.166	.750	.066	.183	.150	.066	.283
		18	1.07	.560	.987	.815	1.15	.992	.461	.770	.771	.464	.822	.317	.514	.404
		11	.803	.410	.781	.903	1.20	1.20	.363	.597	.563	.488	.660	.414	.565	.564
Averages		7	1.51	.796	1.31	.678	1.06	.475	.613	1.05	1.09	.425	1.05	.179	.432	.103

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	1.43	.166	1.28	.366	.400	.116	.083	.166	.133	.024	.183	.174	1.00	.083
2	.458	.066	.116	.200	.383	.250	.463	.500	.150	.033	.116	.500	.100	.083
3	.933	2.36	.183	.033	.350	.133	.116	.066	.166	.200	1.50	.500	.350	.200
1	.083	.116	.141	.083	.208	.083	.100	.074	.074	.083	.200	.083	.116	.050
1	.216	.066	.133	.566	.150	.074	.033	.050	.100	.016	.033	.033	.033	.116
2	.533	.216	.166	.233	.183	.183	.800	.033	.050	.250	.016	.050	.033	.383
3	.233	.166	.766	.133	.183	.233	.216	.224	.133	.066	.116	.033	.183	.166
1	.166	.116	.083	.500	.366	.066	.333	.400	.133	.183	.050	.050	.066	.016
2	.166	.750	.333	.416	.316	.050	.250	.166	.100	.116	.091	.033	.050	.116
1	.174	.166	.566	.266	.166	.166	.041	.116	.316	.133	.016	.183	.183	.266
2	.233	.391	.124	.150	.016	.133	.074	.100	.016	.066	.016	.016	.016	.016
1	.483	.350	.216	.200	.116	.166	.141	.183	.116	.174	.066	.150	.083	.116
2		.433	.150	.250	.116	.583	.166	.050	.116	.716	.083	.024	.100	.050
1	.233	.850	.050	.016	.233	.033	.033	.483	.233	.283	.433	.233	.166	.833
2	.024	.033	.033	.033	.016	.066	.033	.750	.033	.016	.083	.166	.033	.016
1	.833	.083	.166	.100	.116	.016	.116	.150	.016	.016	.333	.233	.283	.483
2	.133	.100	.183	.200	.183	.133	.133	.050	.066	.050	.033	.050	.033	.083
1	.083	.250	.200	.016	.033	.024	.183	.191	.091	.100	.024	.024	.100	.166
18	.377	.371	.271	.208	.196	.139	.183	.208	.113	.140	.188	.129	.162	.180
11	.420	.416	.353	.267	.247	.135	.234	.172	.124	.106	.212	.132	.193	.135
7	.298	.299	.142	.116	.116	.145	.115	.265	.095	.193	.150	.125	.114	.249

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.050	.766	.116	.016	.233	.024	.024	.033	.033	.016	.016	.016	.033	.024
2	.024	.016	.083	.041	.066	.024	.024	.200	.083	.016	.016	.033	.016	.016
3	.141	.050	.150	.500	.474	.024	.024	.250	.166	.050	.133	.016	.033	.033
1	.033	.033	.833	.350	1.16	.050	.166	.166	.033	.050	.066	.116	.183	.216
1	.133	.133	.083	.033	.016	.083	.033	.166	.016	.033	.016	.383	.233	.166
2	.416	.066	.800	.216	.133	.583	.033	.283	.016	.016	.033	.166	.033	.033
3	.041	.033	.083	.100	.016	.083	.116	.116	.150	.033	.333	.083	.100	.083
1	.016	.033	.016	.024	.050	.016	.033	.050	.016	.016	.016	.016	.016	.033
2	.133	.166	.016	.050	.083	.033	.033	.033	.083	.033	.024	.016	.033	.016
1	.133	.100	.150	.050	.066	.033	.116	.100	.416	.200	.166	.050	.016	.033
2	.066	.083	.216	.033	.183	.033	.066	.083	.050	.033	.016	.166	.016	.016
1	.100	.083	.058	.083	.050	.024	.024	.016	.083	.100	.066	.183	.100	.066
2	.091	.083	.100	.016	.066	.016	.066	.033	.066	.074	.016	.050	.066	.083
1	.283	.041	.066	.050	.033	.066	.100	.050	.333	.166	.033	.033	.033	.033
2	.033	.016	.050	.050	.083	.050	.016	.016	.166	.016	.050	.083	.016	.016
1	.066	.033	.033	.050	.050	.016	.016	.050	.166	.100	.233	.133	.083	.066
2	.100	.050	.033	.016	.016	.083	.116	.050	.100	.050	.033	.033	.050	.050
1	.316	.408	.116	.250	.283	.050	.058	.016	.050	.016	.016	.066	.016	.016
18	.120	.121	.166	.107	.170	.071	.059	.095	.112	.056	.071	.091	.059	.055
11	.107	.134	.231	.128	.225	.089	.060	.134	.096	.045	.075	.096	.064	.060
7	.141	.102	.065	.073	.083	.043	.056	.033	.137	.074	.063	.083	.052	.047

	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	.233	.050	.150	.033	.050	.033	.150	.116	.016	.016	.033	.016	.333	.033
2	.233	.116	.066	.066	.016	.083	.416	.083	.016	.066	.016	.083	.666	.050
3	.033	.033	.050	.183	.083	.183	.083	.116	.083	.050	.016	.016	.233	.024
1	.250	.500	.083	.500	.033	.216	.500	.566	.016	.166	.050	.150	.050	.083
1	.200	.083	.100	.033	.033	.033	.033	.033	.083	.133	.050	.033	.016	.016
2	.250	.150	.083	.183	.016	.133	.016	.083	.033	.250	.116	.100	.116	.133
3	.333	.500	.883	.250	.083	.250	.083	.033	.033	.200	.333	.033	.033	.050
1	.016	.016	.016											
2	.033	.016	.016						.016	.166	.016	.250	.016	.050
1	.166	.033	.033	.100	.166	.033	.166	.033	.016	.200	.024	.050	.033	.024
1	.033	.083	.016	.050	.083	.050	.033	.016	.016	.033	.033	.083	.250	.016
2	.150	.116	.066	.100	.016	.016	.116	.016	.066	.033	.033	.050	.500	.500
1	.016	.033	.033	.016	.033	.016	.050	.033	.033	.083	.066	.050	.033	.050
2	.033	.033	.016	.050	.016	.016	.050	.033	.016	.024	.100	.050	.058	.016
1	.050	.016	.016	.016	.083	.016	.050	.024	.050	.083	.033	.100	.100	.050
2	.016	.016	.033	.016	.033	.016	.024	.024	.024	.083	.033	.033	.033	.033
1	.100	.250	.033	.283	.166	.250	.133	.083	.016	.166	.083	.083	.200	.100
18	.133	.115	.080	.122	.058	.094	.120	.084	.033	.109	.064	.073	.166	.076
11	.181	.139	.111	.159	.057	.125	.162	.125	.034	.138	.072	.081	.166	.051
7	.056	.078	.030	.075	.061	.054	.065	.032	.031	.072	.054	.064	.167	.109

	57	58	59	60	61	62	63	64	65	66	67	68	69	70
1	.200	.033	.033	.050	.166	.050	.216	.016	.024	.016	.016	.033	.016	.066
2	.066	.166	.150	.133	.366	.083	.016	.050	.016	.033	.033	.016	.016	.016
3	.133	.033	.033	.066	.166	.016	.033	.024	.024	.033	.050	.033	.016	.033
1	.016	.016	.024	.033	.024	.016	.016	.041	.033	.024	.033	.033	.033	.033
1	.116	.033	.016	.050	.016	.024	.016	.016	.016	.033	.016	.016	.033	.033
2	.183	.016	.016	.016	.066	.016	.033	.016	.016	.016	.016	.016	.016	.016
3	.033	.033	.016	.016	.033	.050	.033	.024	.024	.016	.024	.024	.016	.016
1	.050	.083	.066	.166	.166	.333	.033	.033	.016	.016	.066	.033	.016	.016
2	.033	.083	.016	.050	.200	.066	.033	.016	.016	.016	.050	.016	.016	.016
1	.058	.033	.166	.066	.166	.016	.033	.016	.033	.016	.033	.016	.050	.050
2	.316	.166	.033	.033	.400	.016	.016	.066	.016	.016	.016	.016	.016	.016
1	.016	.016	.050	.050	.016	.050	.016							
2	.016	.016	.033	.033	.033	.016	.016							
1	.016	.083	.166	.050	.050	.016	.016	.050	.050	.033	.050	.033	.016	.016
2	.023	.083	.050	.016	.016	.016	.066	.016	.016	.050	.050	.016	.016	.016
1	.066	.133	.033	.050	.050	.033	.033	.050	.016	.016	.033	.033	.033	.033
18	.084	.064	.056	.054	.120	.051	.039	.031	.022	.021	.034	.023	.022	.030
11	.092	.055	.041	.064	.133	.072	.047	.026	.020	.022	.033	.024	.019	.037
7	.074	.075	.075	.042	.104	.023	.028	.039	.026	.019	.036	.022	.026	.024

Retention.

	71	72	73	74	75	76	77	78	1	2	3	4	5	6
1	.033	.033							.063	.066	.033	.033	.016	.033
2	.033	.016							.050	.033	.166	.033	.050	.033
3	.024	.024							.033	.033	.016	.016	.033	.033
1	.033	.033	.033	.033	.033	.033	.033	.033	.083	.166	.016	.016	.050	.016
									.166	.083	.033	.083	.033	.033
									.058	.100	.166	.033	.050	.050
									.100	.166	.033	.033	.033	.050
									.066	.166	.083	.166	.016	.016
									.016	.033	.016	.016	.033	.016
1	.041	.016	.016	.016	.016				.050	.033	.100	.050	.033	.033
2	.016	.016	.016	.016	.016				.166	.233	.183	.066	.050	.100
									.100	.033	.066	.033	.033	.050
									1.50	.133	.150	.050	.066	.050
1	.024	.033							.500	.166	.150	.050	.033	.033
2	.033	.033							.050	.083	.050	.033	.050	.033
									.050	.033	.033	.050	.033	.033
18	.029	.025	.021	.021	.021	.033	.033	.033	.178	.097	.080	.047	.038	.083
11	.030	.026	.033	.033	.033	.033	.033	.033	.070	.094	.062	.047	.034	.031
7	.028	.024	.016	.016	.016				.316	.102	.104	.047	.042	.047

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain $\frac{\text{wt.}}{\text{ft. O}}$	Cord $\frac{\text{wt.}}{\text{ft. O}}$	Body Length	Tail Length	Age
69	25	1.6707	.4388	108.9	78.482	71.968	170	143	140
69	23	1.6876	.4476	116.2	78.312	71.559	172	146	140
39	13	1.8095	.4902	131.3	78.723	72.113	178	152	140
65	21	1.6716	.4319	105.9	78.434	72.262	162	145	149
53	21	1.7462	.4715	120.5	78.612	72.492	177	148	149
63	21								
60	20								
33	11	1.7948	.4790	137.5	78.694	72.442	175	149	142
42	14	1.7340	.4366	109.4	78.685	72.606	166	138	142
69	23	1.7214	.4408	122.5	78.651	72.481	173	142	149
59	23	1.7013	.4254	106.4	78.551	72.543	164	137	149
72	24	1.7245	.4275	100.4	78.602	72.701	163	122	140
59	23	1.6846	.4121	110.7	78.617	72.482	164	146	140
48	16	1.6590	.3837	100.9	78.571	71.722	155	141	142
45	15	1.6859	.4039	101.2	78.711	72.617	158	139	142
48	16	1.6846	.3983	95.9	78.814	72.734	153	137	142
69	23	1.4451	.3354	73.4	78.956	74.776	145	122	142
46	22	1.6129	.4044	98.1	78.572	72.650	158	137	149
58		1.6897	.4266	108.7	78.624	72.509	164	140	143
58		1.7265	.4513	117.6	78.571	72.274	170	144	144
59		1.6423	.3950	97.2	78.691	72.811	156	134	142

TABLE V-3 INCLINED PLANE BOX FIVE POINTS.

Averages		Males.													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	.550	1.35	.466	.783	.766	.750	1.71	.266	2.23	.433	.250	.500	.291	.316
2	2	.285	.366	3.38	2.98	3.60	.300	1.25	.350	.133	.850	.133	.050	.074	.050
3	3	.033	.416	.250	1.75	1.41	.033	.200	.150	.500	.416	.166	.250	.050	.033
4	4	.916	1.00	.750	.333	.866	1.10	1.10	1.88	.291	.333	.583	.133	.166	.116
1	1	.716	.783	.400	.350	.250	.066	.250	.833	1.00	.100	.333	.250	.333	.500
2	2	1.40	6.41	3.41	2.50	1.33	1.81	6.58	.566	1.18	1.40	.233	.166	.166	.183
1	1	1.20	.233	.683	.666	1.05	.216	.783	.616	.916	.316	.650	.316	.016	.083
2	2	.116	.066	.166	.166	1.01	.074	.116	.383	.333	.258	.500	.166	.216	.100
1	1	.066	.333	2.46	.033	1.03	.100	.624	.633	.100	.666	.500	.333	.616	.350
2	2	.016	.250	.166	.383	.750	1.90	.150	.283	.450	.833	.216	.083	.100	.100
1	1	.300	1.16	.383	.966	.441	.483	.500	2.98	.750	2.40	.200	.374	.374	.708
1	1	.666	.916	.333	.750	1.33	3.51	.500	1.93	.750	2.65	.450	.150	.083	.583
2	2	1.33	1.25	.500	1.33	1.33	1.70	.483	1.25	.783	1.56	.500	.366	.766	.183
1	1	.316	.166	.083	.100	.841	.633	.433	.150	.166	1.03	.283	.166	.116	.133
1	1	.500	2.50	.400	.333	.166	.300	2.20	.950	.600	1.55	.083	.850	.783	.316
2	2	1.40	1.36	.150	.166	.050	.383	.400	.174	.100	.374	.233	.183	.083	.116
1	1	.683	.383	.600	.116	.050	.116	.166	.816	.166	.150	.466	.033	.316	.083
2	2	.750	.441	.316	.588	.500	.266	.116	.533	1.33	.966	.050	.600	.100	.200
18		.624	1.07	.827	.792	.937	.763	.975	.819	.657	.904	.312	.276	.258	.264
11		.508	1.12	1.13	.991	1.15	.621	1.20	.812	.721	.727	.342	.238	.218	.285
7		.806	1.00	.340	.479	.609	.986	.614	.829	.556	1.18	.266	.335	.321	.230

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	1.00	1.20	.466	.183	.200	.150	.083	.116	.016	.016	.050	.041	.066	.041
2	.016	.050	.208	.124	.050	.083	.166	.033	.041	.100	.050	.066	.024	.016
3	.100	.700	.500	.008	.183	.083	.016	.183	.033	.333	.250	.233	.050	.033
4	.066	1.08	.500	.750	.500	.583	.066	.750	.100	.250	.183	.416	.016	.316
1	.050	.033	.066	.250	.166	.150	.136	.166	.100	1.11	.133	.024	.100	.116
2	.050	.166	.100	.333	.066	.116	.183	.016	.166	.100	.500	.750	.066	.166
1	.133	.050	.066	.166	.058	.083	.600	.133	.533	.916	1.58	.800	.266	.150
2	1.01	.033	.066	.033	.033	.016	.300	.116	.233	.116	.183	.166	.050	.700
1	.333	1.06	.066	.383	.500	.200	.616	.466	.650	.916	.283	.083	.033	.033
2	.050	.100	.616	.166	.416	.116	.116	.016	.033	.033	.166	.050	.100	.016
1	1.11	.050	.100	.116	.066	1.15	.100	.050	.083	.066	3.16	.250	.050	.033
1	.916	.450	.291	.166	.100	.100	.166	.133	.024	.016	.024	.050	.033	.033
2	.400	.166	.100	.066	.116	.058	.058	.333	.100	.033	.124	.033	.016	.016
1	.066	.450	.300	.350	.333	.383	.083	.500	.483	.233	.083	.183	.300	.583
1	1.40	.133	.150	.916	.166	.083	.133	.033	.033	.100	.033	.033	.016	.016
2	.583	.133	.383	.116	.016	.033	.100	.233	.150	.683	.050	.250	.166	.166
1	.016	.033	.016	.250	.016	.333	.250	.416	.400	.350	.250	.116	.133	.150
2	.466	.083	.183	.100	.133	.166	.066	.033	.050	.166	.200	.750	.333	.350
18	.451	.351	.232	.248	.173	.215	.181	.205	.187	.307	.372	.238	.101	.163
11	.356	.411	.250	.228	.205	.248	.219	.182	.194	.359	.595	.261	.074	.147
7	.549	.206	.203	.280	.125	.165	.122	.240	.177	.225	.109	.202	.142	.187

	29	30	31	32	33	34	35	36	37	38	39	40	41	42
1	.166	.416	.200	.016	.033	.166	.024	.116	.033	.033	.500	.050	.133	.116
2	.066	.033	.416	.066	.166	.266	.016	.024	.016	.016	.050	.166	.050	.033
3	.016	.083	.166	.333	.083	.250	.166	.166	.083	.050	.066	.050	.033	.033
4	.533	.183	.050	.333	.333	.416	.366	.216	.033	.033	.166	.250	.033	.033
1	.033	.024	.016	.083	.066	.050	.116	.016	.083	.166	.050	.183	.033	.033
2	.033	.033	.283	.033	.016	.066	.016	.033	.033	.250	.050	.033	.066	.250
1	.750	.116	.400	.300	.283	.583	.666	.050	.033	.033	.024	.016	.016	.016
2	.133	.050	.233	.133	.116	.100	.050	.083	.033	.033	.016	.033	.016	.016
1	.066	.166	.333	.250	.166	.166	.050	.033	.050	.016	.016	.016	.041	.033
2	.066	.016	.050	.066	.050	.016	.016	.050	.016	.016	.033	.066	.050	.016
1	.041	.033	.316	.041	.033	.050	.083	.033	.033	.016	.016	.016	.016	.016
1	.033	.166	.033	.233	.050	.050	.200	.308	.100	.033	.091	.233	.033	.033
2	.016	.033	1.33	.133	.233	1.75	.300	.350	.216	.400	.333	.133	.200	.200
1	.083	.416	.716	.383	.250	.166	.083	.083	.166	.200	.050	.166	.083	.033
1	.050	.016	.100	.016	.033	.016	.033	.024	.050	.016	.033	.041	.050	.016
2	.033	.033	.283	.050	.016	.016	.033	.016	.024	.016	.016	.033	.016	.066
1	.100	.050	.016	.024	.016	.033	.233	.033	.123	.233	.033	.200	.433	.016
2	.116	.166	.783	.058	.150	.283	.366	.050	.116	.483	.200	.166	.216	.016
18	.129	.118	.318	.127	.116	.246	.160	.093	.069	.113	.096	.102	.084	.073
11	.173	.104	.223	.127	.122	.193	.208	.074	.040	.060	.089	.079	.044	.085
7	.061	.125	.465	.138	.106	.330	.178	.123	.115	.197	.108	.138	.147	.054

	43	44	45	46	47	48	49	50	51	52	53	54	55	56
1	.100	.166	.116	.050	.033	.033	.033	.033	.033	.016	.016	.016	.016	.016
2	.034	.033	.033	.016	.016	.016	.016	.024	.016	.016	.016	.016	.033	.050
3	.024	.050	.083	.016	.033	.033	.016	.016	.033	.050	.033	.033	.033	.016
4	.083	.033	.083	.100	.033	.033	.033	.033	.066	.033	.024	.024	.016	.066
1	.150	.033	.033	.166	.333	.250	.100	.066	.050	.033	.033	.033	.033	.066
2	.083	.083	.133	.050	.083	.083	.033	.033	.050	.033	.033	.033	.016	.033
1	.016	.033	.016	.016	.016	.016	.058	.050	.050	.050	.024	.083	.033	.050
2	.050	.016	.033	.050	.066	.016	.016	.016	.016	.066	.050	.116	.116	.033
1	.033	.016	.033	.033	.016	.016	.016	.050						
2	.016	.016	.050	.050	.016	.016	.033	.033						
1	.016	.033	.016	.033	.033	.066	.016	.016	.066	.033	.033	.016	.016	
1	.033	.100	.050	.030	.050	.050	.166	.066	.033	.083	.024	.016	.033	.016
2	.033	.083	.016	.016	.033	.033	.066	.033	.016	.033	.050	.050	.083	.050
1	.033	.033	.033	.033	.016	.033	.016	.033	.016	.016	.016	.050	.016	.033
1	.050	.033	.016	.050	.016	.016	.016	.016						
2	.016	.016	.050	.041	.041	.016	.041	.016	.016					
1	.133	.016	.233	.016	.033	.050	.016	.050	.033	.016	.050	.033	.016	.050
2	.083	.016	.333	.266	.083	.166	.116	.133	.033	.016	.050	.033	.016	.050
18	.054	.044	.075	.058	.052	.049	.045	.039	.030	.035	.033	.039	.034	.038
11	.054	.046	.057	.052	.061	.048	.035	.033	.033	.036	.031	.041	.034	.037
7	.054	.042	.104	.067	.038	.052	.062	.049	.026	.032	.038	.036	.022	.039

	57	58	59	60	61	62	63	64	65	66	67	68	69	70
1	.033	.016	.016	.016										
2	.033	.016	.016	.016										
3	.033	.050	.033	.016										
4	.033	.033	.033	.033										
1	.016	.066	.033	.050	.033	.016	.033	.016	.033	.050	.033	.016	.016	.016
2	.050	.066	.016	.016	.033	.016	.016	.016	.016	.016	.016	.016	.016	.016
1	.100	.100	.050	.016	.033	.033	.016	.016	.033	.016	.016	.016	.016	.083
2	.050	.050	.083	.033	.016	.033	.016	.050	.066	.016	.016	.033	.016	.016
1														
2														
1	.016	.041	.016	.016	.016	.016	.016	.033	.033	.033	.050	.016	.016	.016
2	.033	.016	.016	.050	.016	.016	.016	.066	.016	.050	.033	.016	.016	.016
1	.033	.033	.024	.033	.016	.033	.016	.016	.016	.016	.050	.033	.016	.016
1														
2	.033	.033	.033	.033	.016	.016	.016	.016	.016	.050	.016	.016	.016	.016
1	.050	.066	.033	.100	.083	.033	.050	.116	.033	.116	.083	.250	.083	.283
18	.039	.052	.030	.029	.029	.023	.021	.038	.029	.040	.034	.045	.023	.053
11	.043	.049	.035	.024	.028	.024	.020	.024	.037	.024	.020	.020	.016	.032
7	.033	.037	.024	.037	.029	.022	.022	.049	.022	.053	.046	.066	.029	.069

	71	72	73	74	75	76	77	78	79	80	81	82	83	84
1	.016	.033	.016	.016	.083	.016	.016	.050	.024	.016	.083	.050	.033	.033
2	.050	.066	.016	.016	.016	.050	.083	.033	.041	.066	.033	.016	.016	.050
3	.016	.024	.016	.016	.016	.016	.033	.016	.016	.016	.016	.016	.016	.016
4	.016	.016	.050	.016	.016	.016	.016	.083	.016	.083	.016	.016	.033	.016
5														
6														
7	.050	.016	.016	.050	.033	.033	.024	.016	.016	.016	.016	.050	.041	.033
8														
9														
10														
11	.016	.033	.033	.033	.016									
12	.083	.050	.166	.083	.133									
13														
14														
15	.035	.034	.044	.032	.044	.026	.034	.039	.022	.039	.032	.029	.027	.029
16	.024	.034	.024	.016	.032	.024	.037	.045	.024	.045	.037	.024	.024	.028
17	.049	.033	.071	.055	.060	.033	.024	.016	.016	.016	.016	.050	.041	.033

	85	86	87	88	89	90	91	92	93	94	95	96	97	98
1	.016	.033	.050	.050	.033	.016	.041	.034	.050	.050	.050	.050	.050	.016
2	.083	.016	.050	.050	.016	.033	.033	.033	.016	.050	.033	.033	.050	.024
1	.016													
2	.016													
1														
2														
1	.033	.033	.033	.033	.016	.016	.016	.033	.016	.033	.016			
1														
18	.032	.027	.044	.044	.021	.021	.030	.030	.027	.044	.033	.041	.050	.020
11	.032	.024	.050	.050	.024	.024	.037	.028	.033	.050	.041	.041	.050	.020
7	.033	.033	.033	.033	.016	.016	.016	.033	.016	.033	.016			

	99	100	101	102	103	104	105	106	107	108	109	110	111	112
1	.016	.016	.050	.016	.033	.033	.033	.016	.033	.016	.033	.033	.016	.016
2	.016	.024	.033	.033	.016	.050	.016	.016	.033	.041	.016	.050	.016	.033
18	.016	.020	.041	.024	.024	.041	.024	.016	.033	.028	.024	.041	.016	.024
11	.016	.020	.041	.024	.024	.041	.024	.016	.033	.028	.024	.041	.016	.024

	113	114	115	116	117	118	119	120	121	122	123	124	125
1	.016	.016	.016	.050	.033	.033	.033	.016	.016	.033	.050	.016	.033
2	.033	.033	.050	.033	.033	.033	.033	.033	.033	.033	.050	.016	.033
16													
11	.024	.024	.033	.041	.033	.033	.033	.024	.024	.033	.050	.016	.033
	.024	.024	.033	.041	.033	.033	.033	.024	.024	.033	.050	.016	.033

Retention

	1	2	3	4	5	6	7	8	9	10				
1	.033	.033	.033	.050	.016	.016	.033	.016	.033	.016				
2	.216	.083	.016	.050	.050	.083	.016	.016	.033	.033				
3	.050	.033	.066	.066	.033	.033	.050	.033	.016	.016				
4	.050	.033	.033	.050	.066	.183	.066	.050	.016	.016				
1	.150	.033	.033	.033	.041	.091	.050	.033	.033	.033				
2	.033	.024	.024	.033	.016	.050	.024	.033	.033	.024				
1	.166	.050	.050	.033	.033	.033	.033	.033	.033	.050				
2	.250	.166	.050	.050	.166	.016	.033	.033	.016	.016				
1	.166	.116	.083	.116	.083	.033	.050	.033	.016	.033				
2	.166	.024	.016	.016	.016	.016	.033	.024	.041	.016				
1	.450	.166	.416	.233	.116	.016	.050	.033	.033	.033				
1	.100	.166	.133	.050	.066	.033	.066	.033	.033	.033				
2	.050	.050	.050	.050	.016	.033	.016	.016	.016	.033				
1	.050	.016	.016	.050	.033	.024	.050	.033	.033	.033				
1	.666	.033	.033	.033	.016	.300	.050	.050	.024	.024				
2	.733	.300	.200	.166	.166	.016	.033	.033	.016	.016				
1	.033	.024	.024	.024	.024	.116	.033	.033	.033	.033				
2	.983	.1.33	.166	.050	.033	.416	.083	.416	.483	.500				
18	.241	.140	.080	.063	.055	.089	.042	.087	.052	.052				
11	.157	.064	.074	.064	.057	.060	.039	.030	.027	.026				
7	.375	.274	.088	.060	.050	.134	.047	.087	.091	.096				

Trials	Days	Brain Weight	Cord Weight	Body Weight	Brain $\frac{Wt.}{Ht.}$ 0	Cord $\frac{Wt.}{Ht.}$ 0	Body Length	Tail Length	Age
60	12	1.7104	.4425	123.5	78.285	72.135	171	139	150
60	12	1.8161	.4489	124.4	78.624	72.399	166	145	150
60	12	1.7779	.4749	121.9	78.480	72.668	166	139	150
60	12	1.8900	.4885	129.5	78.576	72.773	175	154	150
100	20	1.6564	.4143	127.7	78.483	72.242	168	142	149
110	22	1.7654	.5103	169.2	78.854	73.094	186	167	149
85	17	1.7202	.4480	125.4	78.537	72.008	169	142	149
75	15	1.5782	.3982	91.9	78.279	72.225	153	131	149
50	10								
50	10								
55	11	1.7086	.4599	121.4	78.262	71.711	170	145	149
70	14	1.5744	.3984	102.8	78.404	72.038	161	135	150
70	14	1.8175	.4766	137.8	78.591	72.555	175	153	150
60	12	1.5420	.3800	87.8	78.592	72.657	148	131	153
50	10	1.7130	.4613	116.7	78.540	72.967	170	149	149
50	10								
65	13	1.6506	.4174	111.9	78.632	71.921	162	140	150
65	13	1.5167	.4009	91.4	78.090	72.511	153	122	150
		1.6958	.4413	119.5	78.481	72.393	166	142	149
		1.7359	.4539	127.2	78.486	72.361	169	144	149
		1.6357	.4224	108.0	78.474	72.441	161	138	150

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VITA

John Linck Ulrich was born at Menlo Park, California, December 12, 1877. He received his primary and secondary education in Monterey and Berkeley, California; Chicago, Illinois; and Brooklyn, New York. He entered the Brooklyn College of Pharmacy in 1898, completed one year of work there, and entered Indiana University in 1899, completing there two trimester's work in Biology. He was a special student in Biology in Harvard University during the years 1900-1901 and 1902-1903, spending the intervening year in surveying. Up to 1907 his training was designed to fit him for forestry or landscape architecture, the profession of his father, with whom he worked during the immediately preceding years. In 1907 he entered the University of Pennsylvania and graduated therefrom in 1908 with the degree of B.S. In the fall of the latter year he re["]entered the University of Pennsylvania on a Scholarship in Botany, and received the degree of M.S. in 1909. He taught Biology during the year 1909-1910 in the Baltimore City College, and entered The Johns Hopkins University in 1910.

Mr. Ulrich has worked in The Johns Hopkins University with Dr. Watson and Dr. Dunlap in Psychology, with Dr. Jennings in Biology, and with Dr. Mall in Neurology.

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L. B. CAT. NO. 1137