

importance, particularly to speech. "This," he says, "is the purest association center in the brain and its surface configuration is somewhat of an order of the degree of development of the general cerebral surface." The insular cortex is, furthermore, the thickest in the cerebral mantle, and the fusiform cells in the deepest layer are very abundant. The author observes that, as a rule, in the brains of intellectual

persons the left insula is the larger, and the pre-insula, which is in close juxtaposition with the cerebral centers for articulate speech, is most redundant.

The author states rightly that many more brains will have to be obtained and examined, especially brains of leading men, before we can come to important conclusions. To obtain such brains there have been founded a society in France and two in the

United States, the American Anthropometric Society and the Cornell Brain Association.

Dr. Spitzka cites the will of the German anatomist, Tiedemann, in which this Heidelberg professor wrote: "Den Körper lasst öffnen es gewährt dies vielleicht einigen Nutzen, findet sich ein Theil, der den Aertzen Belehrung gewähren kann, so nehme man ihn in eine anatomische Sammlung auf."

PRESERVATION OF BOOKS IN HOT CLIMATES.

SUGGESTIONS FOR THE TROPICS.

BY FRANK BROWNE, GOVERNMENT ANALYST, HONGKONG.

It is well known that books in hot climates quickly deteriorate unless carefully looked after. There are five destructive agencies which have to be guarded against: (1) damp, (2) a small black insect (anobium), (3) cockroaches, (4) the silver fish (Lepisma), and (5) the white ant.

(1) Books which are kept in a damp atmosphere deteriorate on account of molds and fungi, which grow rapidly when the conditions are favorable. When there has been a prolonged spell of moist weather their covers should be wiped, and they should be placed in the sun or before a fire for a few hours. Damp also causes the bindings and leaves of some books to separate.

(2) The anobium, or bookworm, is a small black beetle, $\frac{1}{8}$ inch long and $\frac{1}{16}$ inch broad; it is very destructive, and books will be found, if left untouched, after a few months to have numerous holes in the covers and leaves sufficiently large for the animal to pass through. If this insect be allowed plenty of time for its ravages it will make so many holes that bindings, originally strong, can be easily torn in pieces. A book containing them should be at once separated from others, otherwise all are likely to become similarly affected. Sound books kept in a closed bookcase in which naphthalene balls are placed do not become damaged, and a damaged book does not get worse, a naphthalene atmosphere being apparently fatal to these insects. When these are killed in the manner recommended by Dr. T. E. Thorpe, C.B., F.R.S., and as described below, it is well to do it in the coldest part of the year, as on the approach of hot weather these insects are frequently found roaming from their borings. Recently the authority above quoted has drawn attention to the usefulness for insects of a paint, recommended in 1888 by the British consul at Swatow. It is composed of 5 drachms of corrosive sublimate and 60 drops of wood creosote in a quart of rectified spirit. This preparation can be used with advantage against all insects. Cockroaches prefer starvation to eating covers protected with it.

(3) The appearance of a fine binding may be destroyed in a single night by cockroaches. The lettering of the binding may, in two or three days, be completely obliterated. A good protective is the paint mentioned in (2), or the books may be coated with a hard—the harder the better—varnish. In Hongkong a cheap kind made by Chinese, and sold at about 9d. a pint is as good as any. From information obtained at the factory it is said to consist of:

Shellac	30 parts
Common resin	40 parts
Gum thus	60 parts
Spirit of wine	320 parts

The resins are finely powdered, and pine leaves and other impurities are removed from the thus by sifting, after which they are macerated in the spirit for several weeks. An analysis of this quickly drying varnish gave 28 per cent of resinous matter—a result quite consistent with the stated composition. This varnish does not keep out the anobium insect, and the addition of corrosive sublimate to it does no good, as the mercury salt is reduced to calomel. Some persons use the paint on the book first, and afterward varnish.

(4) The silver fish, though preferring paper, will attack wood or cloth. It does not bore, but grazes the surfaces of paper. Naphthalene keeps it away.

(5) White ants are usually detected by their traces before they get into bookcases. The practice of raising all movable furniture 2 or 3 inches from the floor, so as to give an air space, is most useful, and is indispensable in hot climates. With books protected by naphthalene vapor these insects need not be feared. A solution of asphaltum in coal tar naphtha (1 in 5) painted on the well-seasoned wood has been found a good protective, so it is mentioned should there be any desire to coat the interior of book receptacles with some such material. Probably a coating of well-boiled tar would prove as useful, but either coating is

unnecessary except in very special circumstances.

General Suggestions.—Where it is necessary to keep books or paper of any description in boxes, cupboard, or closed bookcases some naphthalene balls should be always present with them, and there will be no damage from insects and very little from damp. In dry weather the doors of closed bookcases should be left open occasionally, as a damp still atmosphere is most favorable for deterioration. In damp climates pictures would be greatly protected by arranging a receptacle on the back, so as to expose the print to the vapor of naphthalene. As in hot climates naphthalene balls of ordinary size volatilize somewhat quickly—usually under a year—it has been found best, to save trouble, to use large blocks instead. A piece 4 inches square will last at least five years, but a stock of pieces 2 inches square together with some balls of ordinary size would probably be more convenient for general purposes.

Dr. T. E. Thorpe, C.B., F.R.S., has pointed out that, for the treatment of books and papers already infested with insects the evidence available is in favor of carbon disulphide. He recommends that the various articles be lightly disposed in a chamber made as airtight as possible, and exposed for, say, twenty-four hours, to the insecticide placed in saucers. For a chamber 5 by 3 by 3 feet, a breakfast saucer half filled with the liquid may be used. His instructions include a warning that care must be taken to insure the complete absence of disulphide vapor before a light be brought near the room or receptacle.—The Pharmaceutical Journal.

THE PRESERVATION OF EGGS.

Few people not directly connected with the trade have any adequate idea of the extent to which the egg of the domestic fowl is imported into England. Whether the volume of this trade ought to be an unmixed source of satisfaction to us is another question, for there can be little doubt that if some of the energy, enterprise, and organizing power which have been turned to such excellent account in Denmark, for example, were applied to the production of eggs in this country, we should be less dependent than we are on foreign supplies. Intimately bound up with this question of egg production is that of their preservation; but although much has been written on the value of particular methods, no systematic investigation of the conditions under which eggs must be kept to maintain and insure their quality as food has hitherto been attempted, nor has any proper comparison been made as to the relative merits of the various methods which are practised. Those who are interested in this important subject will therefore welcome the appearance of a paper by Mr. Fr. Prall in a recent number of the Zeitschrift für Untersuchung der Nahrungs- und Genussmittel (No. 7, vol. xiv., October 1, 1907, p. 445), in which the question is treated both observationally and experimentally with all the precision and care which should characterize a scientific inquiry.

The adequate solution of this problem demands that the eggs when preserved shall maintain their normal appearance, smell and taste; in other words, they must in nowise differ in chemical and physical characters, or in behavior on cooking, from fresh eggs. The chemical and physical changes to which eggs are naturally subject are largely dependent on the temperature and relative humidity of the air, and on the presence in it of molds and germs. In an absolutely sterile atmosphere at a sufficiently low temperature and of a proper degree of humidity, eggs will preserve their "freshness" for very long periods of time, if not indefinitely; and all successful methods of keeping eggs imply a practical recognition of these conditions.

Of the various methods of distinguishing old and bad eggs from fresh eggs, one of the simplest is to make a hole of about the size and shape of an egg in a wooden or tin box, and hold the egg in the inside of this box against the light behind the hole. Good

sound eggs are thus seen to be perfectly transparent without striations or spots, and the bubble of air within is not wider in diameter than a ten-cent piece.

Eggs selected for preserving should be those of well-fed fowls—preferably from those of which corn is the chief diet. The eggs should be quite clean; if dirty they should be washed with a little dilute alcohol (50 per cent), and carefully dried.

In what may be called "dry conservation," the main thing is to keep the surrounding air as clean as possible, and free from smell. The temperature should be low, but should not sink much below 32 deg. F., otherwise freezing might cause the eggs to burst. The relative humidity should be from 60 to 80. The best plan is to stand the eggs on an egg-rack, with their points downward, in a cool, light cellar, and preferably in an ice closet, or, on the large scale, in cold-air stores, so that the air can circulate freely around them. Nothing is gained by turning the eggs at short intervals, say weekly, as recommended by some; or by packing them in salt, sawdust, powdered coal or charcoal, wood ashes, sand, etc. Some of these things are found to "taint" the eggs; others are apt to become damp and set up the action of molds.

It is occasionally recommended that the egg should be protected from the outer air by covering the shells with fat, vaseline, paraffin wax, collodion, etc., or that the shell should be treated with salicylic, boracic, or hydrofluosilicic acid, or even sulphuric acid, whereby the calcareous material is chemically altered and made less pervious. Immersing the egg in Cond's fluid or a solution of potassium permanganate has also been suggested. Eggs so treated in no case were found to keep better than by cold storage in pure air.

Eggs which cannot be kept in cold stores or in an ice chest may be preserved by Hanika's method. This consists in first putting the clean eggs into recently boiled water at a temperature of about 110 deg., and then dipping them into boiling water for ten seconds, after which they are to be immediately put into cold water. By this treatment all organisms are killed, and a hard coating is formed between the shell and the "white." The shells are finally washed with a little strong alcohol, dried, and placed in clean, dry sawdust. Eggs so treated were found to be in perfect condition after the lapse of nine months.

Attempts are frequently made to preserve eggs by immersing them in solutions of various salts, or of substances which are known to act as antiseptics. Few of these solutions give a wholly satisfactory result; indeed, many of them, as, for example, salt, salicylic acid, borax, and glycerin, penetrate the shell, and either harden the yolk or impair the flavor. Of these liquids lime water has been most frequently used, but by long immersion in this solution the yolk is apt to mix with the white, and the shell is rendered so fragile that it is very liable to be broken on boiling. The white of an egg which has been kept in lime water is difficult to "whip." Much better results are obtained by the use of a 10 per cent solution of water-glass, especially if the shells are smeared with fat or vaseline, whereby the slight taste of the alkali which the eggs are otherwise apt to acquire may be obviated.

Mr. Prall's paper, which contains the results of many hundreds of experiments and carefully made observations, arranged in tabular form and set out in detail, is a valuable contribution to the economics of an important food problem and merits careful study by those who are interested in the subject.—From Nature.

A Remedy for the Ice-Box Odor.—The sole means of eliminating the characteristic ice-box odor is washing out with soap and water, to which some chloride of lime has been added, says Werkstatt. After thorough drying and airing, the white deposit that appears on the zinc lining must be rubbed off with emery paper. This is a tiresome job, and if frequently repeated, soon wears out the sheet metal covering. But as a thorough cleansing, for a single occasion, the process is attended with satisfactory results.