

BABY INCUBATORS.

A PHYSICIAN TELLS OF THE CONSTRUCTION AND OPERATION.

The Apparatus is very simple and inexpensive, but Attention is costly—*In Addition to Saving a Life, Each Incubation contributes Useful Knowledge.*

In sharp contrast to the lavish test-leashes with which nobles, splendour-lives are often sacrificed to sumptuous cause, is the infinite vigilance and care, the ingenuity, and skill that are sometimes expended upon preserving and taming into flame a little infant being called a life.

Doctors most familiar with the metal receptacle 4 by 2, standing on four legs about waist high, with a small water pipe and heating apparatus on one side and a cold air pipe and additional apparatus on the other, known as the infant incubator. But perhaps few realize the patient skilled watching and the consequent expense necessary to the bringing forward of the little inmate, until it shall be able to take its place in the world as a real "liver and kicking" baby.

At the first appearance upon life's stage of this species of humanity "warm half-made up," it is swathed in a bundle of absorbent cotton and laid in its little nest with nothing to distract its attention but a perfectly accurate thermometer, to which it, however, seems wholly indifferent. The glass lid is then almost closed. Experience has taught the physicians that it is better to leave it in a little space. A trained nurse sits near this place by the side of this unique object and keeps constant watch over temperature conditions of said life. Absolutes quiet and a subdued light among the requirements. The temperature may range from 90 to 98 degrees. In cases of low vitality it is kept at 85, and with the most robust is never allowed to go below 90 degrees. Then every hour the little charge must be fed. This is sometimes accomplished by means of a dropper, but more often a little rubber tube is passed through the mouth and esophagus into the stomach, and into this tube is slowly poured a dray, about a teaspoonful of prepared food. This in the 24 hours about three ounces of food are absorbed. This food is made after a formula arranged by a most expert chemist and changes from day to day according to the development of the baby.

Every 30 hours the little gown of absorbent cotton is exchanged for a perfectly fresh one of the same material. The food and clothing of this embryo passenger are not, therefore, great bills of expense, but its lodgings, its physician and nurses make up a pretty sum for its indulgent parents.

It will easily be seen that the only requirements for raising a baby in an incubator are a perfectly even, high temperature, pure air and a food the nearest approach possible to its natural food. But simple as this sounds it has taxed every resource of the best engineering and sanitary authorities, the finest bacteriologists and chemists in the country to arrive at the present state of advancement. An incubator as it is now perfected costs about \$200. A few firms have them to rent, and as the demand for them is naturally small one may be rented at any time.

Dr. Rotch, who is responsible for many of the recent improvements of the incubator, has been very successful in its use. He insists upon having always two trained nurses, so that no change may there be the risk of change in conditions which might turn the scale the wrong way. This of itself means \$50 a week, and the time of incubation is usually from two months to ten weeks. But the baby so saved comes in time to be quite the equal of his fellows who followed the good, old fashioned ways.

Hospitals cannot boast as great success from their experience with incubators, although several include one among their appliances. In the first place it is often a case where the tiny Mohammed must go to the mountain, and it is almost impossible to accomplish this without some little exposure. Then in most cases the child has only premature birth to struggle with, but the worst factor of having come from ill-conditioned, badly nourished and often intemperate parents. Besides, no nurse in a hospital, no score of nurses, can so arrange that one shall always have an eye on the thermometer; and the 50 or more full blown babies will not upon demand refrain their voices from weeping out of consideration for the sensitiveness of their delicate little comrades.

The hospital people are sometimes asked why they make so great an effort to save the lives of these poor little creatures, at the best, must enter the race of life fearfully handicapped. Their argument, of course, is that the tiniest life in embryo has a right to its chance; but their interest is doubtless largely scientific. Physicians from Maine to California, from the St. Lawrence to the Gulf, are constantly looking to these hospitals for the latest and best results of their researches and experiments, and by studying the treatment and watching the development of cases here, the incubating process included, they may be able to save many a life nearer home. Besides, who can forget whether the tiny atom may not turn out a Lincoln or a Wagner as well as a commonplace Smith or Jones?—M. D. in Chicago Record.

Exhausted.

"Si Hubbard told me that he got a leap of work out of you when you was workin' for him," said the farmer.

"Waal, I allow he did," said the hired man.

"Yaaas. Fact is, I guess he just about got it all."—Indianapolis Journal.

A greater number of us than we would care to admit in life, have satisfactory explanations of this fact off-hand.

POWDER FOR CANNON.

A Mixture That Will Burn Slowly Is Necessary For Big Ordnance.

The greatest trouble with powder in cannon was soon found to be that it exploded all its force too suddenly, so that all the strain came on one end of the gun. When gunpowder is set on fire, it turns suddenly into gas, and the gas needs about 300 times the space that the solid powder occupied. The explosion of ordinary gunpowder is so sudden that for a moment that part of the gun around the powder charge has to hold the big volume of gas squeezed down under enormous pressure until the shot can make a start to get out of the gun and make room for the gas. Hence gunpowder could be made which would burn a little slower, so that it would not all be burned before the shot reached the muzzle, the gas would be more gradually formed and the strain be distributed all along the gun. Such a powder was first made in Germany and was first called iron powder, because it resembled in color and general appearance a cake of chocolate. Its method of manufacture was kept secret, but other countries soon learned to make it even better than Germany. It is made partly by changing the proportions of the ingredients, making them about 19 per cent saltpeter, 3 per cent sulphur and 16 per cent charcoal, but mainly by using an unburned charcoal, thus giving the powder its peculiar color. Thus there arose a division of gunpowders into quick and slow burning powders.

It was not alone necessary to make a powder which would burn more slowly but if possible to make one burn so that more gas would be forming when the shot got near the muzzle than was forming when it started from the breech, because there is more room behind the shot when it nears the muzzle, and it therefore takes more gas to burn up the same pressure against its base.

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Cyclometers are made for wheels of a given diameter, and if a 26 inch cyclometer is fitted to a 25 inch wheel the figures will not be accurate enough to be valuable. For the same reason if the front tire is soft an appreciable error in the measurement will occur, because of the increased diameter of the bicycle wheel. If the tire sinks a quarter of an inch under the weight of the rider, the error in a mile ride would amount to 14 yards. Thus the accuracy of a cyclometer measurement varies perceptibly, according to the hardness of the tire. However, the average bicycle rider is not an engineer or surveyor, and the popularity of the cyclometer is in no way endangered because of this slight variation from the truth, a failing to which the cyclometer is often driven by the subscriber eager for a huge mileage record.

So long as the variation is on the cyclist's side the cyclometer's future is safe. At any rate, the demand for the device is lively, and the makers are encroaching their losses incurred by the encroachment of the bicycle upon the watch trade.—New Orleans Times-Democrat.

The Appellate Courts.

Surgery in the Middle Ages.

In the middle of the twelfth century priests were the only doctors. By an edict of the council of Tours surgery was separated from medicine and the practice of the former forbidden to the clergy. The latter then employed their barbers to perform surgical operations. This arose from the fact of the monks having their heads shaved frequently and observing the dexterity required by the barbers in the use of edge tools. The knights of the razor, from cupping and bleeding, passed on to tooth drawing and finally to other operations requiring skill and dexterity, if not much knowledge. They knew practically nothing of anatomy. It is said surgery was denied to the clergy by a canon of the church which forbade them to shed blood. This was considered the dark age of medicine, and somber indeed it must have been to the worthy citizen who, perhaps, placing himself in the hands of his barber for relief, might, at the same time, that he was getting rid of a tumor, also part company with his head.—*Exchanges.*

The Pull of a Fish.

"What I want," said an angler, "is a rigging of some sort to measure the pull of a fish. If a pound fish pulls 3 pounds 3 ounces I want to know it, and if a 3 pound fish pulls only 2 pounds 6 ounces I want to know that too." A joker wrote to a sportman's paper the other day to tell of an invention to measure the size of the fish that are lost. That is where this pull measure machine would be good too. It would have to be self regulating, of course.

"Everybody laughs when any one says he lost a big one. I've lost fish of a size I never heard tell of just because I don't know what to do. A joker wrote to a sportman's paper the other day to tell of an invention to measure the size of the fish that are lost. That is where this pull measure machine would be good too. It would have to be self regulating, of course."

The Rulers of England.

Kings have governed England for 900 years, queens for 120 and protectors for 11 years. The average reign of the kings has been 23 1/2 years, of the queens 30 years, the average reign of all the sovereigns being between 23 and 24 years. The average reign of the kings of the Angevin dynasty—30 1/2 years—is greater than that of any other reigning family, although the average reign of the house of Brunswick very nearly approaches it. The average of the Yorkist kings—8 years—is the least of all.

Four sovereigns of England have been of the Norman dynasty, and reigned 88 years; eight were Angevins or Plantagenets and reigned 24 years; three were of the house of Lancaster and reigned 62 years; three of that of York and reigned 24 years; five were Tudors and reigned 99 years, and there have been six sovereigns of the house of Brunswick, which has existed now for 181 years.

Enterprising.

Irate Business Man (white with anger at being disturbed)—You bold agents make me so angry with your confounded nerve and impudence that I cannot find words to express my indignation.

Book Agent (jumping with enthusiasm)—Then, sir, you are in luck! I have here the very thing you need—a dictionary of the English language containing all the words and slang phrases known, and only 5 shillings. Take it, and you will never be at a loss to express yourself again.—London Times.

Intemperie.

"This is such a quiet neighborhood. Don't you ever sit out on your front steps?"

"No. There is an amateur photographer across the street."—Chicago Record.

He Whistled.

Ho—Nice dog! I've you bought him my new tricks since I've been east."

"Tommy—No'm; not this year. Pa says he's going to take two weeks off—Roxbury Gazette.

TRYING TO GET EVEN.

Clock and Watch Makers Get Into the Bicycle Trade.

Clock and watch makers who found their regular business falling off on account of the bicycle craze are now making up for it in the manufacture and sale of cyclometers. Competition is exceedingly lively among the rival makers, to the great benefit of the rider.

Three or four years ago there were only a few makers of cyclometers, and they were very heavy and costly. Now cyclometers are made as small as a quarter, weigh almost nothing and can be purchased at a trifling sum. Many dealers add a cyclometer to the equipment of the bicycle as an inducement to the purchaser, and as a result bicycles without cyclometers are the exception.

Cycling has brought many blessings to the trade, and one of the greatest of these is the new little register which records accurately the distances traversed by the cyclist. It is probably a 10,000 mile register, a great satisfaction for the rider to see the miles roll up on the dial as he speeds along. The present cyclometers are very simple in construction, and as a rule perform their duty without error, but too much must not be expected of what is merely a mechanical contrivance. A rider can hardly expect his cyclometer to measure the distance between two points accurately if he walks from one side of the road to the other. In this way a beginner's cyclometer might record a mile while he has been pursuing his strenuous course for only half that distance.

Cyclometers are made for wheels of a given diameter, and if a 26 inch cyclometer is fitted to a 25 inch wheel the figures will not be accurate enough to be valuable.

For the same reason if the front tire is soft an appreciable error in the measurement will occur, because of the increased diameter of the bicycle wheel.

If the tire sinks a quarter of an inch under the weight of the rider, the error in a mile ride would amount to 14 yards.

Thus the accuracy of a cyclometer measurement varies perceptibly, according to the hardness of the tire.

However, the average bicycle rider is not an engineer or surveyor, and the popularity of the cyclometer is in no way endangered because of this slight variation from the truth, a failing to which the cyclometer is often driven by the subscriber eager for a huge mileage record.

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