

SCIENCE AND HEALTH.

The American Public Health Association, a body the objects of which are sufficiently indicated by its name, recently held its second annual meeting in this city. A number of interesting and valuable papers by eminent physicians and others were read, of the more important of which we give abstracts herewith.

Dr. Nathan Allen, speaking upon the laws of longevity, pointed out that a mind well cultivated and balanced, cheerful disposition, temperate and regular habits, are great promoters of long life. Hence longevity is found among civilized nations more than among savages. The prerequisites of prolonged life may be classed under the heads of constitution, inheritance, and obedience to laws. It was finally considered that physiology in its practical application is yet in its infancy; and when it is thoroughly understood in the family and the schoolhouse, the duration of life will be greatly increased.

THE HOUSEKEEPER'S RESPONSIBILITY

formed the subject of some excellent remarks by Dr. Edward James, of Dorchester, Mass., in which he said that man is more affected by the kind of food he eats than the lower animals, because he is of a more sensitive disposition. All measures of his life ought to depend on his digestion, and the methods of his housekeeper. The stomach is originally sound. It can digest and convert all proper food necessary for the support of the animal body, if it is suitably selected and prepared. If, after our meal, the stomach complains, we have headache, or are languid, nervous, depressed, have pains of neuralgia or indigestion, or our energies are overborne, it must be referred to the way in which we have treated the stomach by putting unsuitable burdens upon it. A large portion of these ills are due probably to our own fault, and to our love of what we call really good eating; but the cook and housekeeper are, more likely, to blame.

Dr. Hamlyn, of Bangor, referring to

DIET,

considered that, in the selection of meat for food, there is too little care. Flesh contains the elements of vicious poison. Butcher's meat contains but a small portion of nutriment, as shown by French physicians. It is now exposed to the air before serving it for the table. The exposure deprives it of a portion of its nutriment. Animals should be stalled and fed before being offered for food; but so far from that being the case, they are brought here by long travel in cars, worn and harassed. The meat should be prepared at the pastures of the cattle; and if necessary, the law of the nation should secure such a consummation.

THE SANITARY RELATION OF HEALTH AND ARCHITECTURE

was considered by Mr. Carl Pfeiffer as of great importance, inasmuch as the architect furnishes the human body, by means of its dwelling place, its house, with the proper medicine wherewith to regulate its intercourse with what is its chief food and necessity—air. As this chief food exceeds in amount three thousand times that of all other kinds, so in proportion is the science of building a proper house of pre-eminence to the science of hygiene. One of the first principles of architecture is that the material of buildings should be dry and porous. The furniture can chill and produce rheumatic affections if it is damp or has been long in an unheated room. Cold bedrooms are breeders of disease unless they have ventilation besides their cold. People sleep in airtight cold rooms and believe they are doing a wondrous thing for their health, particularly if they have the bedroom aired in the morning. All night long the air stays unmoved and becomes slowly poisoned, while the evaporation of the body settles upon the walls and makes the room more and more airtight.

Referring to the

REFUSE OF CITIES,

Dr. C. A. Leas, of Baltimore, recommended great care and regularity in removing the ashes and garbage from the various sections. He urged that carts should be employed in this service, and that ashes and vegetable matter should be kept in separate receptacles, and emptied at regular and stated times.

Dr. Storer, of Boston, read a paper on the same subject, recommending a change in the method of disposing of the offal of slaughter houses. The most effectual way was to build chambers or ovens four or five feet square, where the gases and steam may be burned. Public health demanded that the offal and dead animals of a city should not be permitted to accumulate.

Dr. Russell's report on

YELLOW FEVER IN LOUISIANA

was read by Dr. White, of New Orleans. It was reported that the cases at Shreveport and Memphis were not more malignant than those found in New Orleans, and that the sprinkling of carbolic acid and hygienic measures are almost sure to moderate the disease. It is a strange fact that no single colored person took the yellow fever, and they rarely ever take it unless it is fiercely epidemic.

"For use in this city we have dead oil, and for streets carbolic acid. In applying these disinfectants, we applied 70 per cent of carbolic acid, and a chloride of zinc and iron, precipitated from scrap tin, which we used through water carts by a hose attachment, by which three men, going as fast as a horse could walk, could sprinkle each gutter; and by this means we have sprinkled 150 miles a week. No complaint of the smell of carbolic acid ever came to us. We were able, with dead oil and zinc solution, to disinfect about 120 outbuildings a day."

Dr. White said: In New Orleans they sprinkled carbolic acid on the velvets and silks in houses, as disinfectants, as it could not destroy colors.

General Francis A. Walker, superintendent of the United States census, followed in an interesting paper on

THE STATISTICS OF MORTALITY,

in which the proportion of deaths among all classes was shown, as follows:

	Share of population.	Share of deaths.
Colored.....	126 in 1,000	137 in 1,000
Irish.....	48 in 1,000	55 in 1,000
German.....	44 in 1,000	38 in 1,000
English and Welsh....	16 in 1,000	15 in 1,000

The large proportion of deaths from accidental causes among the latter class may be perhaps attributed to the fact that so large a number of the Welsh population are miners. From the severity of our climate, all foreign elements tend somewhat to consumption when on our shores. In the South the native colored furnish a less mortality from consumption than the average, while in the North it is much greater than the average.

Dr. Lewis W. Leeds then read a paper on

THE SANITARY ELEMENTS IN DWELLINGS.

He thought it was a mistake to overheat all the fresh air as fast as it was admitted to our hospitals and public and private buildings. He had come to the conclusion that all artificially warmed air was injurious to animal life. Nature's method of warming was a warm floor, heated by the obstruction of the sun's rays, while the air above is cold.

A report upon the

HABITS OF YELLOW FEVER

was then read by J. M. Toner, M. D., of Washington. One question was whether elevation had had anything to do in the escape from yellow fever. Its favorite places were between the 45th and 100th degrees of longitude, and the 35th north and 35th south degrees of latitude. The strata of air in which yellow fever exists is heavier and lower than the surrounding air. From the facts gathered together, it would seem clear that this disease in the United States never exists above 500 feet. If it can be shown that the existence of yellow fever depends entirely upon the elevation, a great deal will have been done in the investigation.

ATMOSPHERIC ELECTRICITY AND OZONE

was the title of a paper read by Dr. George M. Beard of this city. He said that it has been shown that there are two daily tides of positive atmospheric electricity. In the morning between 6 and 9 o'clock, the atmospheric tide is at its height, falling somewhat between 2 and 5 P. M., rising again between 6 and 9 P. M., and falling to a minimum between 2 and 5 A. M. Similar variations are noticeable in the months, the tide of atmospheric electricity being highest through the months of January and February, gradually subsiding in the months of March, April, May, June, July, and August, when it is at its minimum, and gradually rising again through September, October, November, and December. It has been stated that there is a relation between ozone and intermittent and remittent fevers; that rheumatism is prevalent when ozone is deficient; and that when ozone is in excess, diphtheria, scarlet fever, small pox, measles, scarlatina, and other cutaneous affections become prevalent.

Comparative researches regarding atmospheric electricity, if conducted to a large extent under government supervision, would help to explain the extraordinary stimulative character of the climate of California, to explain the fact that sun-strokes are almost unknown on the Pacific coast, and perhaps elucidate some of the unknown causes of other wondrous effects of our climate.

Professor Chandler, in the course of remarks on

THE SANITARY CHEMISTRY OF WATER,

observed that the organic matter which is dangerous in water is sewage, and many diseases, especially cases of typhoid fever, have been developed by the presence of these impurities in water. Actual experiment shows that water which remains overnight in lead pipes in New York contains 1-10 of a grain of lead to the gallon. It seems to be well established now that rivers possess the power of self-purification, and the drainage of a great city can be received within an ordinary river without destruction of its wholesomeness. The Croton water brought to this city every day contains 22½ tons of mineral matter. To poison the Croton water for one day it would require 3½ tons of strychnin, and there is not, probably, a ton of strychnin in the world. It would take 114 tons of arsenic to serve the same purpose. So it may be seen that threats of poisoning the Croton supply during the war were ridiculous.

President White, of Cornell University, delivered an interesting address on

GENERAL SANITARY TOPICS

and proper education in hygiene. He said: "I would have simple text books in physiology introduced in our common schools; but, better still, I would have short courses of lectures by competent physicians. It thus becomes a study of living man by living man to living man. Physiology should be taught throughout a college course. The science of sanitary engineering is not so large that the main elements could not be given. I have great respect for the old curriculum, but the substitution of sanitary studies will well replace some of the now well worn classics."

THE GERM THEORY OF DISEASE IN ITS RELATION TO HYGIENE was the subject of an able discourse by President Barnard, in which the view was taken that the laws of health and disease were as well defined as those of the mathematics, and the only obstacle was the difficulty attending their discovery. No living organism enjoyed an existence prolonged to an indefinite length, and life began in the germ and ended in dissolution and disintegration. In the human race life was often shortened by ignorance, and in many cases by accident. After discussing the germ theory, the speaker concluded by

saying that drugs were already falling into disrepute, and he hoped to see the time when, through medical science, infectious diseases would be extirpated, and men would live out the time that Heaven intended they should.

SOAP SOLUBLE IN SEA WATER (M. Mainin).—Oil or fat, 46 parts; resin, 10 parts; fish glue, 40 parts; soda or potash, 1 part; oxalate of potash, 1 part. The oil and resin are saponified as usual, but with an excess of alkali, the glue previously rendered gelatinous by solution in oxalate of potash with constant stirring to 50° or 60°.

ANOTHER newspaper concern is to attempt the passage of the Atlantic by balloon. This time it is the *Evening Herald* of Philadelphia. It is to be a hot air balloon, and is now in process of construction.

Recent American and Foreign Patents.

Improved Hydraulic Brake.

John F. Taylor, Charleston, S. C.—This invention consists in means whereby steam, water and air may be conjointly applied to operate car brakes with great certainty, efficiency and economy. Two steam cylinders and two water cylinders have an outlet tube, so connected with the rams that the introduction of steam in one cylinder results in the expulsion of water from the other. The steam valves and valves of the water outlet tube are connected by intermediate mechanism and operated by one and the same lever. The piston rod of the hydraulic engine is connected with brake bars. Provision is made for readily applying the brakes, in case of rupture or breakage of the connecting pipes.

Improved Apparatus for Cleansing Dyed Wool, etc.

James E. Ackroyd, Chester, Pa.—This invention consists of a trough attached to a tank for holding the wool and the scouring and cleansing mixture, having one side curved from bottom to top, and provided on the inside with fixed blocks or wire netting. Above there is a curved track, on which a carriage having blades projecting down to the curved bottoms is arranged to run forward and backward to force the wool up the sides of the tank and over the blocks. The latter are inclined on the sides against which the wool is forced, and the arms of the truck are hinged so as to swing up and pass over any portion of the wool that may be under the points in going back, so as not to tear and injure the fiber.

Improved Mop Holder.

Elton M. Naramore, Underhill, Vt.—This invention consists of a lateral head piece, attached to a mop stick, between which and a wire clamp the mop is tightly held. The wire clamp is provided with coiled springs, which swing sidewise on pivots of the head piece, with upward extending parts hooked to the sides of the handle.

Improved Wheel for Vehicles.

Michael B. White, McLean County, Ill.—The spoke is provided with a round, shouldered tenon, which enters a hole in the felly. The thimble fitting on said tenon is reduced and screw-threaded for one half its length, and on such reduced portion a nut is screwed, and also a jam nut. The thimbles applied to the spoke tenon with its larger end abutting against the shoulder thereof, and has ribs which take into notches on the spoke, for the purpose of preventing the thimble from turning. When the tyre requires to be tightened, or the felly adjusted, a wrench is applied to the larger nut, and it is turned or screwed back toward the felly until the distance between the spoke shoulder and the felly has been sufficiently increased to produce the desired effect.

Improved Pitman Rod.

Samuel N. Wate, Jr., Danville, Pa., assignor to himself and Peter J. Adams, of same place.—This invention consists in improving the pitman rod connection for which letters patent were granted to the same inventor, Nov. 19, 1873. The forward end of a screw, to which is attached a milled nut, rests against a block which is inserted in the inner end of the inner brass. The body of the screw passes through a washer, and its other end is inserted in the rod. This end of the screw is flat, to prevent the screw from turning when the nut is screwed down against the rod. Bolts, which pass through slotted holes in the straps, fit tight in the rod and brass, and are moved with the latter as they are pushed outward; but the hole through the long strap for one bolt, and the hole for the other in the short strap, are so arranged that, when the screw and nut push out the rod, block, and brass, the straps are drawn in just as much as the screw and nut push the rod and blocks apart, so that all the wear and lost motion is taken up without changing the length of the rod. The two cross bars described in the former patent are taken out, and the two bolts mentioned substituted.

Improved Jig Saw.

Marvin E. Weller, Fort Plain, N. Y.—In the front of the frame is a vertical dovetail groove, in which a corresponding tongue on the adjusting plate fits to control said plate in adjusting it up and down and to hold it. For the latter purpose, an eccentric cam is arranged, provided with a weighted arm, which, when it falls, causes the eccentric to bear the tongue against the walls of the groove with sufficient force to bind it fast. There is suitable mechanism in order to lift the weighted lever and unfasten the plate by the hand used for adjusting said plate, and at or just before the time of adjusting it. Thus only one hand is employed for these two purposes, and the other is free to do other things necessary to be done at the same time. The upper cross head carries a couple of gripping jaws pivoted near their lower ends, and curved, outward and then backward, nearly together at their upper ends to provide room for a ball between them, to which a spring is connected. The upper end of the saw, having a slight head upset on it, is placed between the said jaws at the lower ends, and the spring is hitched to the ball, so as to pull it upward between the upper ends of the jaws, which forces the lower ends to gripe the saw and hold it with great force. The lower cross head has two sliding jaws between two inclined plates, and a double spring connected with said jaws, and extending down to an eccentric lever. The saw, also having a small head upset on the lower end, is placed between the jaws at their upper ends, and they are forced up by the two levers between the inclined plates, and thereby forced hard against the saw. These modes of fastening the saw are very simple, and allow of changing the saws with but very little labor and loss of time.

Improved Life Preserver.

George and Charles Palmer, Morris Run, Pa.—This invention consists in making a cape weatherproof, water repellent and inflatable, so that, while it affords the usual protection for sailors and seafaring people, it is also a life preserver.

Improved Bee Hive.

John M. Shook, Normal, Ill.—The feature of novelty in this hive is the arrangement of the honey frames on the comb frames proper, so that both may be supported by the same hinges, and removed from the hive together.

Improved Car Brake.

James B. Felton, Mt. Pleasant, Md.—This invention relates to that class of brakes which are operated by steam from the locomotive. It consists in the mode of providing the cord with a take-up mechanism by means of a tube and pulley frame, jointed so as to fold up when the trucks come close together, and to unfold as they separate, thereby maintaining a constant tautness in the cord which connects the power with the brake mechanism, and preventing the brakes from being applied unintentionally.

Arms of the Law.

It is doubtful whether any similar weapon of offense, unless it be the sand club or slung shot, is more liable to cause severe injury or even death by a single well directed and heavy blow than the ordinary policeman's "locust." For the preservation of order and peace, it is manifestly necessary to provide men with suitable weapons. A recent invention of Messrs. Simon Beery, of Ohio, and J. W. McDonald, of Texas, for which a patent has lately been granted, is an elastic baton, of gutta-percha, india-rubber or similar flexible material, which appears to be an improvement over the heavy wooden "billy."