

vaccinated person would be vaccinated. During the voyage the surgeon should inspect the emigrants each morning and evening. He should be required to inspect the closets, urinals, bath-rooms, and the steerage daily, seeing that all of these places are ventilated whenever possible, and disinfected when offensive.

On the appearance of any contagious or infectious disease the person affected should be isolated in the hospital with the necessary attendants. The bedding should be burned, and the clothing disinfected by immersion in boiling water and suitable disinfectants for half an hour.

If there is any reason, as in the case of cholera, and of typhoid or typhus fevers, to suspect the food or water-supply, no uncooked food should be issued and all drinking-water should be boiled. If the ship's condensers have sufficient capacity the water-tanks should be separately emptied, then steamed under pressure by a temporary pipe-connection with the boilers, and then filled with the condensed water. The application of this latter procedure would have prevented most, if not all, of the cholera cases that developed at the New York quarantine among the passengers and crew of the steamships from Hamburg.

If the disease appearing among the passengers is contagious, as small-pox, typhus fever, or yellow fever, the occupants of the steerage or compartment in which the disease appears should be made to go on deck at the first opportunity; the compartment should be closed; the vessel stopped so as to turn her full head of steam into the compartment, though in the case of a small compartment stopping the ship may be unnecessary, and steam turned in for two hours at least. Without opening the compartment except to permit the entrance of a machinist if necessary to make the requisite pipe-connection, the steam heat should be turned on so as to dry the compartment. Dr. A. N. Bell showed more than twoscore years ago that this procedure was quite feasible in a naval vessel, and with the modern appliances in a passenger steamship the entire plan here outlined could be completed in a day.

With this disinfection of the water and food supply, and of the part of the vessel in which the disease first appeared, the only remaining nidus for disease would be in the passengers themselves. By daily muster of the passengers their condition could be carefully supervised, and isolation could be practised in the case of any suspected person. The liberal use of lye and solutions of quicklime, which the experiments of Kitasato and Cornet have shown to be as efficacious germicides as bichloride of mercury, would supplement the steam disinfection.

The regular inspection of passenger steamships by competent medical officers of the United States would ensure the enforcement of the existing statutes to which reference has been made; and the attention of the steamship companies being thus directed to the necessity of sustaining a certain hygienic standard, would probably result in the selection of more experienced physicians for appointment as ship's surgeons. The ship's passengers and crew are a community of which the surgeon is the health officer; he may isolate and disinfect, supervise absolutely the food and water supply, and in a limited area exercise an authority far greater than has sufficed to enable health-officers ashore to stamp out contagious or infectious diseases that threatened the welfare of the community for which they were responsible.

## Clinical Department.

### TWO CASES OF SUNSTROKE.

BY E. CHANNING STOWELL, M.D.

I AM allowed to report two cases of sunstroke which were brought to the accident-room of the Massachusetts General Hospital and entered the service of Dr. Edward N. Whittier. Neither of the men were drinkers. Both were young and vigorous. One received some alcohol on the way to the hospital. Its effect others must determine. Alcohol in large quantities in sunstroke must always be hazardous.

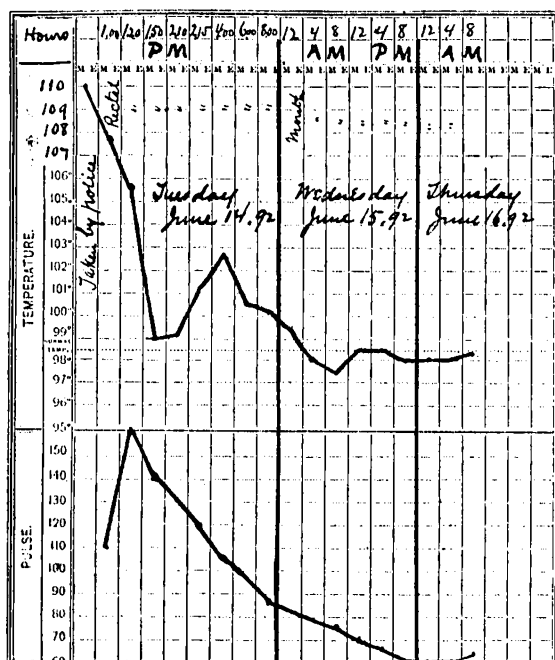
The cases were of interest for the high temperatures; the almost marvellous effect of ice; the non-administration of alcohol; the use for heart stimulation of atropine and strychnine alone; the nervous manifestations; the curves of the temperature and pulse; and the complete recovery.

CASE I. A. P. G., about thirty-two, single, born in Scotland. In Boston about four months. Had been working as assistant to the cook in a basement restaurant on Court Street. For two days had been feeling dizzy. On the morning of June 14th, dizziness again came over him, but he tried to fight it off. At noon he left the hot kitchen to walk on the street and get the benefit of the air. He remembered walking on Tremont Street, and that is all. The police saw him stagger and fall in front of the fruit-stand at the Tremont House. They picked him up and found his temperature at the station-house was 110° F. They put a bag of ice on his head and brought him in the patrol-wagon to the Massachusetts General Hospital.

Seen in accident-room at 1 p. m. Skin of hands and arms dry and hot. Pupils moderately contracted; reacted to light. Breath hot, but sweet. Lips ashy pale. Muscles loose, flaccid. Completely unconscious. Well developed and nourished. Muscular. Temperature by rectum 107.8°. Stripped on table. Rubbed with ice from head to toe by several attendants. Ice packed about neck, over carotid, laid in groins, and packed into axillæ. Pulse at entrance had been soft, moderately full, about 110. After rubbing about fifteen minutes with ice, pulse became small, thready, 160; respiration, which had been easy at entrance, became broken, with spasm and groaning at expiration, though inspiration was easy. Temperature 105.5° by rectum. Now the skin became covered with goose-flesh, and the fingers twitched slightly. Head in spasm turned to right; eyes thrown up and toward right; pupils now somewhat dilated. Pulse grew weaker and somewhat irregular. One-sixtieth of a grain of atropia and five minims of ergotole were given subcutaneously. Had a small, involuntary defection. Rubbing with ice continued until about 1.50, when temperature by rectum was 99°. Muscular spasm had increased. Arms bent and rigidly held across chest. Legs drawn up and flexed on abdomen. Respiration moaning. Pulse at wrist almost imperceptible; at apex, with stethoscope 140; lack of booming quality to first sound. One-sixtieth of a grain of strychnine was given subcutaneously. Pupils dilated; eyes rolled up; lids shut tightly; disliked the light. Now dried off and laid on dry bed covered with blanket; ice-bag to neck. Skin cold everywhere except over head.

Now, although for a moment he seemed to become quieter, it did not last, and the worst spasm of general muscles and respiration occurred. In about twenty

minutes he became quieter again, and temperature by rectum was 99.1°. Sent to Ward D at 2.15, where profuse vomiting and catharsis took place. Put to bed. Ice-bag to forehead and one to back of neck. Pulse still thready and weak, 120; temperature 101.2°. Vomited, and had involuntary dejections several times until 4. p. m., when found that temperature was 102.8°. Pulse 104, somewhat fuller, little stronger, regular in force and rhythm. Respiration easy; no moaning. Had regained consciousness to a certain degree, but was not perfectly clear in mind yet. Skin hot and dry. Put in bath at 70°; ice slowly added, and rubbed over head and body. Said he felt cold, but did not make active objection. For a few minutes at a time talked rationally. In bath twenty to thirty minutes. Temperature 100.6°; pulse 92, fair strength, regular, soft. Liquids. To bed again. At 11 p. m. found his mind clear. Talked sensibly. Apologized for rudeness; but thought it was morning, and the affair had happened yesterday. Quieted and reassured; and he turned over to sleep.



June 15th. Slept well. Perfectly rational. Pulse good character. Felt thirsty and hungry. Slight headache, and pains in bones of arms and in shoulders. Had had rheumatic pains before, but no acute joint affection. Liquid and farinaceous food; one egg at noon. In afternoon no headache. Head felt cool to hand. Ice bags omitted.

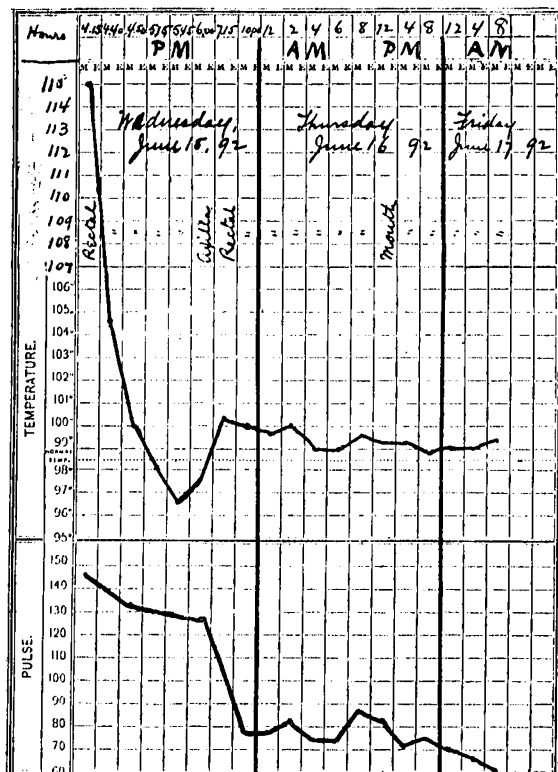
June 16th. Slept well. Appetite not very good. Five minims of tincture of nuxvomica before each meal. Up and dressed. After cautioning against heat, both of sun and hot rooms, discharged well in the cool of the late afternoon.

On July 14th the patient wrote: "For the first few days I felt weak and giddy in the head but now I feel quite strong and well again."

CASE II. T. L., about twenty-four, single, laborer, born in Ireland, lived in East Cambridge. Brought to accident-room, Massachusetts General Hospital, in Cambridge ambulance. Said by police-officer in charge to have been working in a sewer; was seen staggering

on railroad track, and fell before being reached. Was given four tablespoonfuls of whiskey in divided doses by police-officer between time of being picked up and arrival at hospital. Seen in accident-room at 4.15 p. m., June 15th. Completely unconscious. Pupils much contracted, did not react to light. Skin hot, dry. Lips ashy pale. Pulse irregular in force and rhythm, very weak, first sound of heart lacking booming quality. Smell of whiskey on breath. Respiration labored, irregular, superficial; moaning and spasm with expiration; inspiration free. Absence of knee-jerks. Plantar reflex markedly excited by touching sole of foot with ice. Exceptionally good muscular development. With stethoscope, apex beat 146. Temperature by rectum 115°, which was as high as our thermometer would register. Stripped on table. Began by rubbing ice on head. In short time rubbed the whole body surface except over the precordia. Three, and at times four, men worked the ice. Ice was packed under his neck and over the carotids, in the axillae and laid in the groin. After working twenty-five minutes, at 4.40 p. m. the temperature in rectum had fallen to 104.6°. Pulse still irregular and much weaker. One-sixtieth of a grain of atropine was given subcutaneously. Respiration was somewhat deeper, and moaning ceased for a time. Goose-flesh began to develop, and the knee-jerk returned. When his temperature was taken in the rectum, he objected. He moved arms and legs. At 4.50, temperature in rectum was 100°; pulse 132, character not improved. One-sixtieth of a grain of strychnine was given subcutaneously. His pupils had dilated and now reacted to light, but he disliked to have eyes opened. Goose-flesh had increased. Bluish tinge to arms and face. Arms in spasm, folded across chest. Rubbing with ice stopped, except of the head. At 5.15, temperature was 98.3°; character of pulse unchanged. One-sixtieth of a grain of strychnine was given subcutaneously. Removed to a dry table. Moaning respiration for a few moments ceased, and breathed easily, then began again. Seemed dusky; circulation did not return rapidly enough in cheeks and hands after pressure. Respiration not deep or full. Oxygen, in a constant, gentle stream, was given until he left the accident-room; after about ten minutes, each inspiration became deeper and the expiration was freer. Legs partially drawn up towards abdomen. Head still rubbed occasionally with ice. Skin of cheeks and shoulders warm to hand; skin of legs and abdomen cool. Turned on side, and drew himself together as if cold. Opened eyes, but did not understand. Covered with blankets, but after a time moaning respiration with spasm at expiration returned to a lessened degree. At 5.45, temperature 96.6°; pulse more regular, fuller, soft, with more strength. Transferred to Ward D. Seemed colder; feet and legs felt cold; face blue. Oxygen, in a constant, gentle stream for about fifteen minutes. Heater to feet, and blankets. Ice-bag to head; ice-bag to back of neck. Pulse 128, constantly improving in character. Temperature in axilla at 6 p. m., 97.5°. Seemed quiet. Opened his eyes on his name being spoken, but did not fully understand. At 7.15, found warm again. Heaters taken away and blankets taken off. Delirious. Fought violently to get out of bed. Kept repeating, "I guess I'll go up now. Will you take me up in the tub?" and made motions looking upwards, as if seizing the rounds of the ladder leading out of the sewer trench. Temperature by rectum 100.2°. Head hot. Put into tub-

bath at 70°, and held there, in spite of struggles, while his head was rubbed with ice and ice added to bath. In fifteen minutes began to get cold and goose-flesh appeared again. To bed again in the moist sheet. At 10 P. M., temperature was 100°; pulse 80, full, soft, good strength. At 11, answered to his name, and talked a little rationally, but soon turned over and went to sleep. Respiration gentle. Liquids. Cracked ice.



June 16th. Slept well all night. Talks rationally in every way this morning. Complains of some general headache. Tongue dry. Is thirsty. Vomited once or twice in night; mucus tinged with bile. Says he has had no movement of bowels for a week. Glycerine (two ounces) in suds enema, gave a good movement. Is very drowsy and drops asleep easily. Cold liquids.

June 17th. Will smile, but apparently is naturally of a dulled intellect. Took ice-bags from head and put them under pillow last night. Teases to go home at night, and promises to keep in the house and keep his head cool. Headache only slight in the frontal region. Cautioned against exposure to heat. Discharged well.

## Medical Progress.

### RECENT PROGRESS IN ANATOMY.

BY THOMAS DWIGHT, M.D.

#### CRANIO-CEREBRAL TOPOGRAPHY.

PROFESSOR CUNNINGHAM has completed his great work on the surface anatomy of the cerebral hemispheres.<sup>1</sup> The several chapters have, we believe, all appeared as papers in the *Journal of Anatomy and*

<sup>1</sup> Royal Irish Academy, Cunningham Memoirs, No. vii, 1892.

*Physiology* and some of them have been noticed in these Reports. There is, however, an additional chapter on cranio-cerebral topography by Mr. Victor Horsley to which we would call attention. It should be consulted in the original, for it is too comprehensive to admit of a brief summary. We shall touch only on a few of the more important points. This chapter, we may say, extends over some fifty quarto pages.

First for the fissure of Sylvius, beginning with the fossa. We believe that we have already commented on the vagueness of the term "pteron," which many use and which no one defines. It is gratifying to find that Mr. Horsley discusses this point thoroughly. He shall speak for himself: "In the adult, the commencement of the fissure of Sylvius at the anterior extremity of the Sylvian fossa is, by almost every author, localized on the external surface of the skull, beneath the pterion. Now, as is well known, the form of the pterion varies according to the relative share taken in its formation by the component bones, but for the European races it may be assumed to be always in the shape of an II.<sup>2</sup> Under these circumstances it becomes a matter of much importance whether the posterior end or the centre or the anterior end of the parieto-sphenoidal suture, represented by the horizontal bar of the II, is to be taken as the pterion. Whether, in short, the ptero-temporal or the ptero-frontal junction indicates the origin of the fissure of Sylvius. Accepting the account given in Chapter II of the configuration of the fossa, the origin of the posterior limit of the fissure will far more often be found in the adult beneath the ptero-temporal extremity of the ptero-parietal suture, and this point should therefore, for the purpose of localizing the commencement of the fissure of Sylvius be regarded as the pterion *par excellence*. The trunk portion of the fissure, running, as it does, just along and posterior to the edge of the lesser wing of the sphenoid, where that divides the anterior and middle fossae of the base of the skull, is situated on a line drawn about transversely, that is, at right angles to the plane in which the pterion lies. It reaches, of course, to the anterior perforated spot which lies just external to the anterior clinoid process. The general direction and relations of the branches of the fissure are as follows:

"The anterior limbs run forwards beneath the line of the pterion to just beyond the coronal suture. The posterior branch or limb, in the adult, courses backwards along the squamous suture, leaving it just beyond the highest point of that line, and running towards the lambda."

It will be noticed that Horsley speaks of anterior limbs. These are usually two, an ascending and a horizontal, between which is Broca's cape, or promontory. The horizontal, which is the more anterior, extends along the top of the great wing of the sphenoid. All these fissures are higher in the child.

The main, or posterior division of the fissure of Sylvius may end in one of two ways. The more common is for it to turn upwards at an angle of about 100° from the general direction of the fissure and, often bifurcating, to end just in front of the centre of the parietal eminence. Less frequently the line goes about straight to a point rather further back than the other termination and of course below the parietal eminence.

The fissure of Rolando is discussed at great length. Mr. Horsley leans to the use of relative rather than absolute measurements for determining its upper end.

<sup>2</sup> The H is by no means always evident. — T. D.