negligence, or injury, concerning which no particulars could be ascertained, there being in many instances no medical attendant at all, and in others only a medical attendant called in at the last to see the little one pass away in convulsions, but without having had the opportunity of ascertaining the previous nature of the illness.

Many of the cases of meningitis appear to originate in knocks on the head, either by accident or design, through carelessness, or cruelty. Many cases of diarrhœa originate in bad, or badly prepared, food; and this cause also operates actively in promoting mesenteric disease. The frequency with which young children are shut up alone, leads to many accidents—among others to accidents by fire, often of a terrible character.

Most of the members of the Statistical Society are aware that recently a movement has been started in Dublin for the Prevention of Cruelty to Children, and one of the objects I have in view in bringing this matter prominently before this Society is that the information contained in the paper may serve as an indication of the necessity there is for taking measures to improve the conditions of child-life in Dublin. It is necessary not merely to save the lives of little children, but to secure that those who do survive the dangers of infancy and early childhood may have a fair chance of growing up into healthy men and women, sound in body, mind, and soul, both good and useful, and capable of fulfilling the duties for which Providence intended them.

ART. II.—*A Medico-Statistical Sketch of Modern Alexandria.* By
BRIGADE-SURGEON ALBERT A. GORE, Army Medical Staff,
Senior Medical Officer.

WHEN Alexander the Great, after his conquest of Syria, had advanced into Egypt, and by the taking of Memphis secured the possession of the country, he founded Alexandria B.C. 332, 12 miles from the Canopic mouth of the Nile, which up to then had been alone open to foreigners, principally Greeks. Strabo, who visited the city 24 years B.C., found Lake Mareotis fed by several canals from the Nile, by which much merchandise was imported. He noticed the then salubrity of the air, which he attributed to its peninsular situation and to the opportune rising of the Nile, which filled the lake in the summer season and prevented its becoming marshy by evaporation, while the north wind passing over so much sea secured an agreeable temperature in summer.

He found the city intersected with spacious streets, through which horses and chariots passed freely, and its temples, public buildings, and palaces occupied nearly a third of the whole extent. In the suburbs were many gardens and tombs, with apartments set apart for the embalming of the dead. The circumference of the ancient city was said by Pliny to be 15 miles—in magnificence only inferior to Rome. Through it flowed the lucrative trade of Arabia and India. Its population, under the Ptolemies and Cæsars, numbered 500,000, including many slaves. Its school of learning and library had a world-wide renown, but at the commencement of the 3rd century it begun to wane; yet when Amrú, Omar's lieutenant, took it A.D. 641, after a siege of 14 months, he found there still 4,000 palaces, a like number of baths, 400 places of amusement, and 12,000 gardens, and one quarter occupied by 40,000 Jews. In 1777 its Turkish population had dwindled to 6,000 souls, little changed when the French garrison, 10,582 strong, surrendered to the British in 1801; but soon after Mehemet Ali began to rule Egypt new buildings sprung up in every direction, the European quarter became developed, and in 1835 its population had increased to 35,000. To-day it is 249,000, with an annual mortality of 48·9 per 1,000, a fine harbour and many handsome public and private buildings, few traces remaining of the bombardment of 1882. It is the favourite summer residence of his Highness the Khedive, whose palace is at Ras-el-Teen, on the ancient island of Pharos.

Several ancient writers—Diodorus, Strabo, Quintus Curtius, and Celsus—speak of the climate of Alexandria as having been healthy in their time, with a temperature both cool and salubrious, attributed to the admission of the Nile water into Lake Mareotis. The climate in the winter is agreeable, as a rule, but oftentimes cold from tempestuous weather and rain, which falls occasionally from October to February. These sudden changes are very trying when one is not properly clothed. The average rainfall per annum is $7\frac{3}{4}$ inches, the extremes recorded being $111\frac{1}{4}$ and $2\frac{3}{4}$ inches. The temperature ranges from 55° Fahrenheit—the mean for January—to 88° Fahrenheit—the mean for August. The thermometer in the shade seldom ranges above 86° , very rarely reaches 95° or falls below 50° . The prevailing N.W. wind is cool but damp, especially in the months of July, August, September, and October, when the relative humidity is high. The S.E. wind, which blows across the lake or foul foreshores, is said to be unhealthy and productive of fever, and sometimes offensive from decaying animal

and vegetable matter left exposed as the Nile or lake-water falls. This wind in the spring turns into a dry, hot, disagreeable "*khamzin*," which blows for several days at a time at irregular intervals during April, May, and June; on such occasions the relative humidity falls as low as 26 per cent., and the temperature in the shade rises as high as 110°. At this period eye affections are more prevalent, especially among women and children, owing to the glare and fine dust, but they are readily amenable to treatment in a darkened room by means of strict attention to cleanliness, isolation, and astringent collyria.

In the market ample supplies of fish, meat, fowls, bread, fruit, and vegetables are exposed for sale. The Greek islands supply game, the harbour oysters, and Italy wine—pure, full-bodied, and not expensive. The oke ($2\frac{3}{4}$ lbs.) is the standard weight, and the piastre ($2\frac{1}{2}$ d.) the current coin. For water the city depends upon the Mahmoodeyeh Canal, opened in 1820, which taps the Rosetta branch of the Nile at the village of Atfeh, 50 miles distant. It receives many impurities from the villages along its banks, has a slow current, is navigable, but the water is filtered prior to distribution at the waterworks, and in most houses afterwards passes through porous zeers and charcoal filters; in barracks and hospitals boiling is used as an additional precaution. When so treated it is clear, odourless, agreeable to the palate, neutral, about 1 grain to the gallon of lime, 5 of chlorine, 2 of sulphuric acid, with no traces of ammonia, nitric or nitrous acid, or phosphoric acid. Total hardness, 2·45. A litre of Nile water analysed at Cairo by Ismalan on July 10th, when the river was rising, gave the following result:—

Total organic matters	.	.	.	0·1810
Lime	.	.	.	0·0582
Magnesia	.	.	.	0·0315
Chloride of sodium	.	.	.	0·0146
Acid, sulphuric	.	.	.	0·0102
„ phosphoric	.	.	.	nil
Sesqui-oxide of iron	.	.	.	0·0215
Matters in suspension	.	.	.	2·1700
Calcined inorganic residue	.	.	.	1·9950

The suspended matters were matters coloured by chlorophyll, confervæ, diatoms, desmidiaceæ, daphnia, when becoming putrid bacterium termo. Wells are now seldom used, but those in the town are very impure, containing much lime, chlorine, and marked indications of sulphuric, phosphoric, and nitric acids.

A Commission appointed by his Excellency Rias Pasha to consider the question of the improvement of the water-supply to the town of Alexandria met on Feb. 3rd, 1889, and decided to recommend that all drains running into the Mahmoodeyeh Canal from the villages along the banks should be closed, and that fresh outlets for the drains should be made to discharge on the land side; that strict orders should be given to the inhabitants along the banks to cease making the canal the receptacle for every description of rubbish and filth, and that these orders should be enforced by severe punishment if disregarded; that carcases of animals should be promptly removed when seen in the canal, and that it should be systematically patrolled under the direction of the irrigation department, who, on their part, would open the lock at Kafr Dawar once every ten days in order to allow a good flush of fresh water to come in from the Katatheh Canal. It was hoped that by these measures danger to health might be avoided, and a fair water supply ensured during the period of abnormally low Nile.

In the neighbourhood of Ramleh, a much-frequented suburb of Alexandria, and summer resort of many Europeans from Cairo, the evil consists of a recent tertiary light-coloured sand, and a sandy limestone, composed chiefly of broken fragments of shells (condylia). Alexandria is founded on an alluvium and permeable sand, much saturated in parts with sewage, leakages from cesspits, and badly-formed drains. During the year 1888 no less than 472 human corpses were found in the Nile. The quality of the water (especially when the river is low) is sometimes complained of. Pestilential emanations from the sewers in certain quarters occur with the increasing temperature, and at the fall of the year, when their contents are stirred up by heavy rain. Goats, buffaloes, and cows yield a supply of milk no doubt frequently adulterated with such water. Aerated water is much drunk by the better classes, a piastre a siphon. In one of the principal manufactories I found the water carefully filtered, but cheaper kinds are not so well prepared. Cigarette shops and brasseries, or inferior liquor shops, abound, and are much frequented. Black coffee is largely partaken of by all classes. Such are the general conditions influencing health in this seaport town, one of Egypt's health-resorts.

The common diseases are typhoid, simple continued and mild intermittent fevers, small-pox, conjunctivitis, diarrhœa, dysentery,

venereal, various skin affections, hepatitis, and abscess of the liver, cholera and the plague at rare intervals. Venereal is very common among both the native and European prostitute class. Judged by observation in our military hospitals, the prevailing type is the soft chancre, often accompanied by buboes, in the warm and relaxing weather slow to heal. Iodoform, carbolic oil, and boracic lint, with supporting treatment, afford the best results with the latter. For the indurated chancre and its sequelæ mercury is given with good effect. Tertiary syphilis is rarely seen.

The following statistics afford some idea of the diseases of the station, and of the work performed by the medical staff of the military hospital at Alexandria from the date of its being opened, February 3rd, 1883, to July 27th, 1888, a little over five years:—

Admitted,	-	-	- 10,779
Died,	-	-	- 164
Invalided for discharge,	-	-	- 95
Invalided for change,	-	-	- 719
Discharged to duty,	-	-	- 9,801

244 officers were treated in hospital, 8 died, and 44 were invalided for change of climate. Mortality to cases treated, all classes, 1·47 per cent. The more important admissions were venereal, 2,779; fevers, 1,683; diarrhœa, 810; cutaneous diseases, 555; dysentery, 441; debility, 365; eye affections, 343; dyspepsia, 209; jaundice, 206, rheumatism, 206; bronchitis, 207; hepatic disease, 142; heart, 124; tonsillitis, 118; phthisis pulmonalis, 51; pneumonia, 49; tænia solium, 31; mental disease, 27; delirium tremens, 22; malignant cholera, 14; sunstroke, 9; scarlet fever, 1. Enteric fever accounted for 84 deaths, 21·37 per cent. of the cases treated; cholera, 11; pneumonia, 10, or 1 in 5; dysentery, 8, or 1·80 per cent. of those treated; hepatic disease, 5; phthisis pulmonalis, 4; heart disease, 2. There were 566 admissions for wounds and injuries.

The varieties of venereal disease were:—

Primary venereal sores,	-	-	- 1,635
Gonorrhœa,	-	-	- 897
Secondary,	-	-	- 247

And of fevers—

Simple continued,	-	-	- 820
Febricula,	-	-	- 239
Enteric, -	-	-	- 393
Ague, -	-	-	- 196
Remittent,	-	-	- 35

The regiments from Suakim and up Nile imported many cases of fever, dysentery, and rheumatism—men who had undergone much hardship, exposure, and frequent movement, inseparable from military service in the field. Of the very few admissions for small-pox none occurred in 1886 or 1888, and the one under treatment in 1887 was imported. In 1886 the sick of 30 different corps were treated in the hospital; the maximal strength of the garrison was then 3,410; number of beds equipped 415. The dry-earth system was in operation in hospital and barracks, and all enteric stools were disinfected, placed in closed receptacles, and removed beyond reach of danger.

Of these fevers, enteric (endemic in Cairo and Alexandria, and associated, outside barracks, with defective methods of getting rid of the excretions) was the most important and the most fatal, affecting most newly-arrived corps, subject to, for the first time, local morbid influences. The greater majority of those attacked were under twenty-five years of age. The greater heat of the frontier stations added much to the difficulty of treatment, and increased the mortality to, in some cases, 38 per cent. of those attacked. The mortality and liability to attack decreased with service in Egypt. A remarkable example—the 1st Yorkshire regiment, which, on return to Alexandria in 1887, after a sojourn of three years in the country, and exposure at Assuan, had only one admission, and no deaths—pointing to acclimatisation as a preventive. Medical officers have noted the frequency with which the large gut was affected, and the prevalence of dysenteric symptoms following upon or mixed up with those proper to typhoid.

They have classed the ætiology of cases occurring up Nile under various heads:—(a) Germs carried up river from Cairo—fourteen days to reach the first cataract at Assuan. Some of the patients being found in the second week of the fever on arrival, with rose spots; (b) comparative youth of the soldiers; (c) foul drinking water from the Nile, which was used as a latrine by natives on the banks for washing purposes, making gingerpop and lemonade sold to soldiers, the latter not making use of boiled and filtered water; (d) typhoid stools passed into Nile; (e) troops following the banks where soil was freely impregnated with feculent matter; (f) difficulty of personal cleanliness on service; (g) monotony of diet; (h) badly cooked food; (i) fatigue and anxiety of mind, with depression; (j) rapid changes of temperature, great heat in

day, cold wind at night; (*k*) impure milk. The onset was found to be often very invidious; diarrhœa by no means constant, 1 in 10 or more constipated, and in one-third no rose spots. Hypostatic congestion of back part of lung a frequent complication, increasing head symptoms, with increasing heat. Epistaxis not of frequent occurrence; and hæmorrhage from the bowel, when present, a grave symptom. Relapses proper, not common, but recrudescences frequent. The mortality would have not been so high had all doubtful cases of continued fever, diarrhœa, or febricula of over twenty days' duration been included. In the hospital at Alexandria the mortality of simple continued and enteric fever combined was 7 per cent.; the mortality for all forms treated—viz., 1,683—was 5 per cent.

The temperature chart of 393 cases diagnosticated as enteric showed considerable variety, but may be grouped under six heads:—(1) Abortive cases reaching to normal on fourteenth day. (2) Fevers of twenty-one days' duration. (3) Fevers of thirty-one days' duration. (4) Marked vacillations or remissions from commencement to close. (5) Irregular temperature. (6) High temperature prolonged by recrudescences. The second and third were more or less typical charts.

Beyond the fact of there being a greater frequency of dysenteric lesions the *post mortem* appearances were similar to what has been observed in India and other tropical and semi-tropical countries. The mesenteric glands were always enlarged and softened; the spleen was more or less enlarged, softened and congested, and full of dark fluid blood; the small intestine was congested, principally at its lower end, with Peyer's glands in various stages of infiltration and ulceration. The diseased solitary glands were sometimes the more prominent lesion. The ulceration was generally most marked at the ileo-cæcal valve. The condition of the large intestine varied. The specific lesions of enteric fever were therefore well marked. A mixed treatment—mineral acids and quinine, symptomatic, anti-febrin, aconite, antipyretic mixtures, digitalis, occasional baths, tepid or cold sponging, the ice cap, cooling drinks, milk, concentrated beef or chicken tea, milk and soda water, and the recognised treatment of complications. During convalescence a gradual approach to more solid food; alcoholic stimulants when indications of failing heart were present.

Of thirty cases treated in 1888 the following were the more interesting particulars:—

Age—completed 18 years	-	1	} Under twenty-five years 25
„ 19 „	-	2	
„ 20 „	-	5	
„ 21 „	-	5	
„ 22 „	-	5	
„ 23 „	-	5	
„ 24 „	-	2	
„ 26 „ and upwards	-	5	

Service in Egypt—

Under 1 year	-	-	28
„ 2 „	-	-	2

Days under treatment of recovered cases—

30 and under 35	-	2
35 „ 40	-	1
40 „ 45	-	3
50 „ 55	-	3
55 „ 60	-	1
60 „ 70	-	6
70 „ 80	-	4
80 „ 90	-	3
92 days	-	1
139 „	-	1

Duration of fatal cases—15, 40, 32, 16, 11, 17 and 9 days.

Average duration of cases—56·2 days in hospital.

Temperature on admission—

100° and under 101° Fahr.	2
101° „ 102° „	5
102° „ 103° „	4
103° „ 104° „	12
104° „ 105° „	6
105·2° - „	1

Maximal temperature reached—

102° and under 103°	-	2
103° „ 104°	-	3
104° „ 105°	-	14
105° „ 106°	-	11

The relapses with an intervening apyrexical period, 3; recrudescences, 7. Eruption in five cases very profuse, on abdomen

especially; about a third of other cases not observed. In six cases only did the temperature continue above normal beyond the 31st day—viz., to the 33rd, 36th, 41st, 44th, 48th, and 68th day. In 5 the symptoms abated about the end of a fortnight. All the patients returned to duty in Egypt except one invalided for change to England for debility after a stay in hospital of 139 days.

Among those who recovered, dysentery occurred during convalescence in two, bronchitis in one, and debility in another.

Fatal cases—(1.) Age twenty-two; service four years; in Egypt two months; in hospital fifteen days. Temperature on admission 103.2° , maximum, 105° ; eruption doubtful; tongue dry and furred; much diarrhœa in first week; considerable hæmorrhage; much abdominal tenderness; high temperature not influenced by antipyretics (antifebrin, &c.). *Post mortem*—Lower end of ileum ulcerated; perforation; mesenteric glands enlarged; spleen 24 ozs.; large intestine congested.

(2.) Age eighteen; service three years; in Egypt seven months; in hospital 40 days. Temperature on admission, 104.2° ; maximal temperature, 105° ; no diarrhœa; chest symptoms; hæmorrhage from bowels. *Post mortem*—Small intestine full of blood clots; congested; glands enlarged; solitary glands of large intestine ulcerated and punched out; spleen enlarged 18 ozs.; lungs congested.

(3.) Age twenty-six; service eight years; in Egypt eight months; in hospital thirty-two days. Temperature on admission, 101° ; maximal temperature, 105° ; loose motions, followed by profuse diarrhœa; base of left lung congested; considerable hæmorrhage. *Post mortem*—Spleen enlarged, softened 8 ozs.; fourteen ulcerated patches in ileum; solitary glands enlarged; perforation in two ulcers.

(4.) Age twenty-one; service three years; in Egypt ten months; in hospital eleven days. Temperature on admission, 102° ; maximal temperature, 105° ; diarrhœa; motions light yellow; no abdominal pain or tenderness. *Post mortem*—Lungs somewhat congested; spleen $6\frac{1}{2}$ ozs.; three ulcers in small intestine, one perforated; glands enlarged; large intestine congested, indurated, pigmented.

(5.) Age twenty-one; service two years; in Egypt eleven months; in hospital seventeen days. Temperature on admission, 103.4° ; maximal temperature, 105° ; violent headache; delirium on admission; tongue dry and hard; much diarrhœa later on.

Post mortem—Brain congested, much effusion of serum on surface; lungs congested; spleen softened, $7\frac{1}{2}$ ozs.; sixteen ulcers in ileum; six patches of livid congestion in large intestine.

(6.) Age twenty-one; service three years; in Egypt eleven months; in hospital nine days. Temperature on admission, 104.4° ; maximal temperature, 105° ; tongue furred; no abdominal pain. *Post mortem*—Lungs congested; spleen enlarged; softened, 19 ozs.; Peyer's patches enlarged; twenty three ulcers in various stages in small intestine, one perforated; large intestine much congested.

The very serious complications in these cases were hæmorrhage, perforation, or brain congestion, and effusion.

With regard to treatment, we have yet to find a specific for this fever. I think it may be regarded as an established fact, now, that high temperature, minus infection, does not produce that serious degeneration formerly attributed to it, and that we must seek in the infection process and the ptomain intoxication resulting from it, those deleterious effects upon the vital organs which undermine the system and eventually cause death in enteric fever, pure antipyretic medicines reduce the temperature, but do not stimulate the nervous system, do not relieve the delirium, or increase the flow of urine. In a serious fever of specific origin they have no permanent effect, except when malaria complicates the disease where quinine is useful. Viney has confirmed Vogel's observations that after cold baths have reduced the fever there has been a rapid increase of weight. Cold so applied being a true afebrile remedy, while antipyretics are simply antithermic. It is still held by very high authorities that the cold bath treatment combats best the effect of the infective and toxic agencies, the reflex stimulus aroused by the shock to the peripheral nerve endings reacting on the nerve-centres which furnish innervation for circulation, respiration, digestion, tissue formation, and excretion, that the system is enabled to tide over the dangers which would come from failure of those functions—the simple cooling effect on the blood occupying a secondary though not unimportant office. In tropical and semi-tropical countries where the system is already enervated by constant heat, this treatment, when circumstances admit of its being systematically adopted, should prove the most beneficial and the nearest approach to a specific for typhoid, and reduce the mortality from 21.7 per cent.—that of 11,124 cases collected by Brand and treated on the expectant method—to 3 or 4 per cent. That

this is possible the following statistics quoted by Vogel appear to prove, in a temperate climate :—

Source			Treatment	Number of Cases	Percentage of Mortality
Military Hospital, 1841-68	.	Munich, -	Expectant -	5,488	20·7
1868-71	.	-	Intermediate, with water	2,241	12·2
1875-81	.	-	Baths and antipyretics -	702	7·6
1880	.	-	Strict cold baths -	428	2·7
1882-87	.	-	Ditto - - -	141	3·5

while the result of cases treated before the fifth day are even more satisfactory.

ART. III.—*Note on an Outbreak of Pneumonia at Tulla, Co. Clare.*

By JAMES MOLONY, F.R.C.S.I., L.K.Q.C.P.; Medical Officer, Tulla Workhouse and Dispensary District; late President of the Irish Medical Association.

DURING the many years I have been in practice I have never known pneumonia to prevail to the same extent that it did in this neighbourhood last winter and spring. On the whole, the mortality has been very small, taking into account the numbers attacked. There was no death, I may say, unless the patient, not recognising the formidable nature of his illness, tried to battle against it for some days without treatment, and remained out of bed, thinking he was suffering only from an ordinary cold. In the majority of cases I have met with, where the temperature was not very high, little treatment was required beyond confining the patient to bed and using hot poultices. In any case where the temperature was 104° or 105°, or higher, a few doses of quinine reduced the temperature, and lowered the fever—the number of respirations lessening, but not so quickly as the temperature lowered. The frequency of the pulse was the last to give way. In a few cases the quinine caused deafness and singing in the ears, when the use of it had to be given up for a while. I found 5-grain doses, repeated as occasion required, answered its purpose quite as well, and more safely than larger doses.