loss of half a pound in ten days.—March 8th. The veratrum had been taken regularly, and the dose increased to twelve minims three times a day. The pulse was rather less frequent, having only once reached 100. Respirations 20. In the fortnight, the temperature had risen twelve times above 101 deg. Fahr., and once to 102.2 deg. Fahr., having never fallen below 99.2; morning average, 100.5 deg. Fahr.; evening average, 100.8 deg. Fahr. He weighed 9 st., showing a gain of 1½ lbs. The cough was less. Crepitation was diminished. The veratrum, not having reduced the temperature, was omitted; and cod-liver oil, in two-drachm doses, was prescribed, with dilute nitric acid and cascarrilla, twice a day.—March 22nd. The temperature had somewhat fallen, only once reaching 101 deg. Fahr.; and once falling to 98.6 deg. Fahr.; morning average, 99 deg. Fahr.; evening, 99.8 deg. Fahr. The oil was taken regularly. The weight was 9 stone, there being no gain or loss.—In the next few days, his temperature fell to normal; and at the end of the fortnight he had gained 1½ lbs.—April 25th. He had had slight diarrhoea, but had, on the whole, improved. His cough was still troublesome; appetite good; temperature normal. He weighed 9st. 1½ lbs., showing an increase of 2½ lbs. since admission. The physical signs were improved. Dulness and bronchophony were detected under the right clavicle, but no crepitation. There were slight dulness under the left clavicle, and a little crepitation in the scapular region.

In this case, the temperature for a whole month was, on an average, above 100 deg. Fahr.; and yet the patient gained a pound and a half.

CASE II.—Mary A. C., aged 13, was admitted March 13th, 1872, with the following history. Two years ago, she had diabetes, and at the same time was attacked by sharp pain in the right side, severe cough with frothy expectoration, and wasting. The diabetic symptoms lasted eight months, and her medical attendant pronounced her cured of that disease. The cough and wasting continued up to the time of admission; and hæmoptysis to the extent of several ounces occurred fifteen months ago, and again later. Her aspect was pale and very cachectic; her cough very troublesome, and the expectoration mucopurulent. The tongue was red and slightly coated; the appetite bad; the bowels regular; pulse 130; respirations hurried; morning temperature, 100.8 deg. Fahr.; evening, 100 deg. Fahr. *Physical Signs:* There was dulness over the whole right chest, and moist cavernous sounds were audible in the upper half. Crepitation-sounds were heard throughout the left chest. She was ordered full diet, with an egg for breakfast, an extra half-pint of milk, and a rice-pudding. Mr. Northey prescribed, in my absence, a teaspoonful of cod-liver oil twice a day, with mistura ferri acida and a morphia and squill linctus. The temperature was taken night and morning for three weeks, and, after a week's interval, for three weeks more. Her weight, two days after admission, was 4 st. 3½ lbs.—March 18th. She appeared much exhausted. Pulse 136, very weak; cough very troublesome. The oil to be continued, and the dose increased to a dessert-spoonful; the iron to be omitted. She was also ordered half an ounce of mistura vini gallici every four hours, and an effervescing ammonia mixture twice a day. Fish and rabbit were substituted for butcher's meat.—March 25th. She was very flushed. The tongue was thickly furred and the papillæ prominent. Pulse 124, stronger. There was crepitation throughout the right lung; cavernous gurgle in the upper half. There was less crepitation in the left lung. The urine contained a slight trace of sugar. Two grains of quinine were ordered three times a day; and the mistura vini gallici was ordered three times a day. The oil was continued.—April 11th. The oil had been taken regularly, in two-drachm doses, since April 1st. The temperature for the first week after admission was generally over 100 deg. Fahr.; the morning average being 100.7 deg. Fahr., and the evening 100.2 deg. Fahr. In the second week, it rose slightly, and twice exceeded 102 deg. Fahr.; the morning average being 100.3 deg. Fahr., and the evening average 101.6 Fahr. In the third period (ten days), ending April 8th, it fell to some extent; the morning average being 99.2 deg. Fahr., and the evening 99.6 deg. Fahr. The patient now weighed exactly the same as when she was admitted, nearly a month previously, though her temperature had been above 100 deg. Fahr. for more than a fortnight, and above 99 deg. Fahr. for two days since. From the 15th to the 24th of April, the morning temperature rose occasionally above 100 deg. Fahr., the average being 99.2 deg. Fahr.; the evening was generally high, and gave an average of 100.2 deg. Fahr. The patient gained three-fourths of a pound.—May 10th. The patient had for the last three weeks been eating a chop and having half a pint of ale daily. The oil was taken regularly, except during one week, when it was omitted on account of sickness. The urine was free from sugar. The average of both morning and evening temperatures still exceeded 99 deg. Fahr.; but the patient had gained three-fourths of a pound more.

Her weight was 4 st. 10 lbs., making a total gain of a pound and a half since admission two months ago.

There was nothing special in the diet or treatment of these patients to account for their thus gaining flesh more than others similarly situated. In the first case, the appetite was tolerable, but no oil was taken, when the temperature was at its highest. In the second, the appetite was bad, but oil was taken nearly the whole time. These cases by no means stand alone, as similar ones have occurred in the wards of my colleague Dr. J. E. Pollock, who, like myself, was surprised at their not losing weight. Dr. Ringer (*Temperature in Phthisis and Tuberculosis*, p. 19) gives some instances in which increase of weight took place while the temperature was considerably above 100 deg. Fahr.; and he remarks, "that patients with a very considerable elevation of temperature, but who enjoy a good appetite, do not lose flesh, provided always that they are not employed in any active pursuit which entails much waste of tissue"—an opinion which my experience partly, but not entirely, confirms; for I have known cases of pyrexial phthisis placed under all the favourable conditions of rest and good diet, and enjoying a ravenous appetite, yet lose flesh rapidly. It is nevertheless quite certain that, however high the temperature may be, the state of the appetite exercises great influence over the gain or loss of weight in phthisis; and that, if Niemeyer's theory about the relation of temperature to waste is to be accepted, a saving clause to this effect must be inserted in it.

COLOTOMY FOR INTESTINAL OBSTRUCTION.*

By CHARLES STEELE, F.R.C.S.,

Surgeon to the Royal Infirmary, Bristol.

THE observations which I am about to make are based upon several cases which have come within my knowledge of patients suffering from intestinal obstruction sinking without operative interference; and more particularly upon one which lately occurred in my practice, where a man was snatched from the jaws of death by the performance of colotomy. I am sure that surgeons of experience can, with me, recall to memory cases in which they regret to feel that timely surgical interference was not suggested, or, if suggested, was prohibited by relations of the sufferers; whereas, had it been carried out, it would have added to the laurels of surgery by retaining in life some who otherwise were doomed to die—*post mortem* examination revealing in one, for instance, a simple contraction of the passage of the sigmoid flexure, in another a twist of intestine, which could easily have been rectified. I will proceed to narrate the leading points of the case to which I more particularly refer.

Mr. B., aged 52, though slightly built and not strong, was a man of active habits, and always enjoyed good health until lately, when he suffered from diarrhoea (but never from constipation), for which he obtained temporary relief from medical aid. He had never observed the faeces flattened or unnatural in shape, or accompanied by blood or mucus. On June 2nd, he experienced a feeling of need to have relief, but was unable to obtain it. A dose of castor-oil which he took produced no effect. The sensation increased; pain in the right groin and slight pain in the left iliac region, with sense of fullness, were added, and increased steadily until, at four o'clock next morning, he felt it necessary to send for me. I found him suffering colicky pains in the situations named, with anxious countenance, yellow conjunctiva, irritable tongue, some tympanitis, and tenderness in the right groin. The finger introduced *per rectum* came into contact with an amount of moderately firm faeces. This, taken with the fact that diarrhoea frequently exists through a channel in impacted faeces, and the other symptoms being in favour of this being the impediment to action, led me to prescribe a full dose of castor-oil with ten drops of laudanum, and hot fomentations externally. He was soothed, but no defæcation occurred, though he took two more doses of castor-oil during the day. In the evening, I ordered a pint enema of soap and water with castor-oil in it. This returned coloured by faeces. He was slightly sick twice after the second dose of castor-oil, and brought up bile.

Next morning I found him in much the same state. He had not slept, but felt a strong desire to go to stool all night, and said he felt more likely to succeed in defæcation. The yellowness of the conjunctiva, tenderness in the right groin, and tympanitis were increased. I ordered a pill of a third of a grain of podophyllin, half a grain of extract of belladonna, and three grains of compound colocynth pill immediately, to be repeated after four hours; also an enema of ox-gall in

* Read before the Surgical Section at the Annual Meeting of the British Medical Association in Birmingham, August 1872.

soap and water. No action resulted. His condition was much the same through the day. During the night the symptoms increased, and the pulse lost in power. I ordered a pill of one-third of a grain each of podophyllin and extract of belladonna, and two grains of extract of aloes immediately, and another in three hours. I passed the O'Beirne tube up the bowel, and tried to wash out the fæces from the rectum with abundance of warm soapy water, but did not succeed. I then gave him chloroform, and with difficulty cleared out with a spoon-handle from the upper part of the rectum a good deal of firm fæces, and afterwards tried to pass the long tube higher, but found it stick in a feculent mass in the bend of the upper end of the rectum. On coming to himself, he expressed much comfort from this dislodgment; and I tried galvanism, which produced strong hopes in the patient, but no actual effect. Later on in the day, he expressed so strongly his conviction that with a powerful dose he should obtain relief—which had been threatening ever since I had cleared the rectum in the morning—that I yielded to his solicitations, and ordered the aperient which succeeds, if a passage be possible, when all others fail; namely, croton oil, in two half-minim doses at four hours' interval. The bowels rumbled a good deal after these, and the patient felt very hopeful; but no relief followed. Peppermint lozenges, which he took throughout the attack dispersed flatus freely by the mouth, and relieved the feeling of distension. I now determined to give rest to the intestines, and to suggest colotomy as the right and only remedy. In the afternoon the tympanitis was considerable; I should have punctured to relieve it, had I not had the major operation in early expectation. The tenderness in the right groin and left iliac fossa was greater, and was increased by pressure. The knees were slightly drawn up to relieve the distension, but could be put down without giving pain. The tongue was dry, red, and transversely cracked; the pulse feeble and intermittent. I ordered half a drachm of sulphuric ether and four minims of tincture of opium in mucilage and camphor water, to be taken every three hours, and promised to see the patient at ten o'clock at night. During the evening, I was asked to meet in consultation Dr. E. L. Fox, who, before this illness, had prescribed for Mr. B. for diarrhoea. We went together at ten o'clock, and found that from the first dose of mixture much comfort had been derived, followed by quiet sleep. The patient felt better, his pulse was not intermittent, and we agreed that we could not do better than continue the mixture, adding, at Dr. Fox's suggestion, a suppository of a grain of opium to allay the soreness of the rectum. I told Dr. Fox that, as at first there was nothing to contraindicate it, and much in favour of the cause of obstruction being accumulation of fæces, I had tried every means of obtaining relief by the natural channel, aperients increasing in strength, enemata, long tube, scooping the fæces from the upper portion of the rectum, and galvanism; that now I was convinced there was obstruction depending either on pressure from a tumour, or twist of the gut, and proposed, when the system was quieted, to perform Amussat's operation. We could not be sure which of these was the cause of obstruction; since, as regarded the former, there had never been sense of weight, pains, discharge of mucus or blood, occasional difficulty, or flattening of fæces, and though a swelling could be felt high up, *per rectum*, between the rectum and bladder, all present agreed that from its lobulated form, mobility, and boggy feeling, it seemed more like a coil of small intestine filled with fæces than a tumour pressing on the gut. The chronic diarrhoea experienced in this case was unlike that of scirrhus, stricture, or tumour, which usually is not persistent, but alternating with difficulty and some costiveness. With regard to the second case—twist of the gut—there could not be named by the patient any exertion, strain, sudden pain, or internal feeling pointing to such an event; and the principal pain during the illness was in the situation of the bowel clearly above the seat of obstruction, there having been no sickness throughout, save that at first naturally produced by castor-oil. Dr. Fox suggested distending the rectum with air before resorting to operation, in hope of thereby undoing a twist if one existed. This I did next morning until the rectum became like a distended bladder, but without good result.

The patient felt better in the morning, and his pulse was better. In this state, taking strong liquid nourishment, he passed the next day and night. The next morning, however, I was sent for early, as he felt suddenly worse; the tympanitis and distress were greater; the tongue red and dry; pulse feeble and intermittent; the feet were becoming cold. After prescribing for the relief of these symptoms, and persuading the patient and his friends to submit to it, I arranged for an early operation. Dr. Fox kindly administered chloroform, and Mr. Arthur Prichard, my senior dresser, assisted me. I performed Amussat's operation. After stitching the intestine to the skin and opening it, flatus freely escaped, and the abdomen became flatter; but though we could see liquefied fæces in the intestine, none came away. Mr. B. dozed quietly after the operation, under the influence of a little laudanum,

and felt easier on awaking. Mr. A. Prichard remained with him for two hours, and gave me a favourable report of his condition on meeting me at the Infirmary at midday. Early in the afternoon, the nurse ran to me in great dismay to state that quantities of fæces were pouring from the wound in the side. I was happy to hear it, and allayed her fears by repeating what she had failed to comprehend before, that it was what we had expected to occur at the time of operation. Evidently the action was suspended while the effect of chloroform and of a subsequent dose of opium lasted. Liquid fæces and flatus continued to pass, and the patient was easy and took food well, and suffered no pain during the next thirty-six hours; only the wound and its immediate surrounding being tender. After this time he became rather feverish, drew up his left leg, and was extremely tender over a patch of the size of a hand immediately in front of the wound, where localised peritonitis existed. The skin above and below the wound became much swollen, red, and painful; but the inflammation ended in serous exudation only. I gave five grains of Dover's powder every four hours, which allayed these symptoms, and to some extent checked diarrhoea, which had now set in. The peritonitis did not spread, and in forty-eight hours ceased. The inflammation in the skin gradually subsided; but the diarrhoea, accompanied by bright red irritable tongue and extreme thirst two days afterwards, became worse. I prescribed five grains of Dover's powder, gum arabic and chalk mixture, rice, arrow-root, and rice-water. After three days, the diarrhoea merged into moderate semiliquid defecation. Though it tried the strength, I purposely did not suddenly arrest the diarrhoea, as it depended greatly on accumulated fæces and aperient medicines. Afterwards, as a very irritable feeling in the stomach, with pyrosis and distress in the course of the oesophagus, troubled the patient a good deal, I gave ten grains of tris-nitrate of bismuth, forty minims of tincture of henbane, and gum in camphor-water, which afforded much relief. Some days afterwards, diarrhoea again occurred, and the two last named mixtures were continued, one or other, according to the state of the bowels, for three weeks, when tincture of perchloride of iron was substituted. The pulse, which during the peritonitis had been 120, reduced gradually during three weeks to 76 per minute. The tongue very slowly lost its brilliant redness and gained a slight coating; the thirst also subsided; the abdomen became soft, and lost all tenderness; the appetite returned; and the gradations through eggs, fish, fowl, to mutton chop, were duly observed: the strength was thus very slowly regained.

I had made the wound in the skin of the shortest prescribed length of four inches, as the patient was thin, which left an inch at each extremity of the bowel to heal. This was effected by granulation, dressed with chalk ointment, and touched with nitrate of silver. Four weeks after the operation, the intestine had partly united to the skin by first intention; but as some pus oozed up between them, and there was no tension on the sutures, I was glad to leave these (they being horse-hair) for three weeks, till all was firmly united. The result was a straight orifice, with bright pink lips of mucous membrane.

Though there was altogether steady improvement, for four weeks the patient's condition was truly precarious, owing to peritonitis, gastric and intestinal irritation, diarrhoea, intermittent pulse, want of appetite, depression, exhaustion, and oedema of the left foot and leg for a few days. This enabled me to understand the period of danger—namely, five weeks, specified by Mr. Cæsar Hawkins in his valuable summary of cases of this nature. From this time the patient rose from bed, moved about, drove out, took short walks, and gained a moderate amount of strength; all effect of the illness and operation being overcome, save some irritability of tongue, and an uncomfortable feeling from the false anus when walking, which was relieved by a long strip of plaster, taking its bearings from a distance, supporting the orifice. Sprinkling the pad with chloralum lotion has prevented unpleasantness when unexpected defecation occurs. Since a few days after the operation, the main source of annoyance and of sense of weakness to the patient, has been the discharge of tenacious mucus *per rectum*, at first due probably to irritation of the rectum by manipulation. This was relieved by injections of cold water; four days after operation, it was tinged with fæces, but no fæces have ever passed since by the anus. When the soreness of the part had sufficiently subsided (it remained very tender to touch for six weeks), I made an examination, and found that the swelling before referred to between the bladder and rectum still existed, was larger, firmer, and had fallen lower, and was, in fact, a tumour, compressing the rectum against the sacrum, and obstructing its channel. Lately for a few days, more marked symptoms were manifested; pain over the sacrum, dragging weight, and once passage *per rectum* of a little bloody mucus—all caused by a temporary attack of digestive derangement, which, by producing flatus, pressed the tumour downwards and produced congestion in a portion of the gut: the cause being removed, these symptoms have subsided, and the patient is doing

well again. He has required to be very careful in diet, as beer and some other articles of diet directly produce diarrhoea; but this malady is not constant as before, being only produced by indiscretion in eating or drinking.

I fear I have already trespassed too long on your attention, but was anxious to describe the case clearly and simply. I will now briefly state the propositions which I wish to lay before you on this subject.

1. The real cause of obstruction in this case was extremely obscure, and for some time most resembled fecal accumulation; even when the rectum was cleared, the boggy lobulated feeling of the mass felt by the tip of the finger *per rectum* seemed to all most like feces in intestinal coils. Many may consider that aperient treatment was carried too far, and the opiate treatment not begun sufficiently early. But in a case where fecal accumulation appears to be the cause of obstruction, we should make every legitimate endeavour to remove it: and what would be the position of a man who, where this happened to be the true cause, were to begin the opiate treatment too soon, and thereby lock the bowels, should he suggest and proceed to operation, when the straining stage of chloroform administration, overcoming the practitioner's opium barrier, should effect a free alvine relief *per rectum*, just as the scalpel was incising the abdominal parietes? The likeliest preventive for such disgrace would be a good dose of castor-oil given by the attendants without the surgeon's knowledge.

2. As soon as it is evident that there is mechanical obstruction, soothing treatment and operative interference cannot be too soon adopted. This I feel a matter of vital importance; and I am convinced that, just as with hernia, the earlier the operation the more probable is a happy termination—exhaustion, collapse, and gangrene, being thereby prevented.

3. In this case, and in similar cases, but for the operation, a fatal issue must have in a few days ensued; therefore, however long the patient may live afterwards is owing to this means—an immense satisfaction to the surgeon, and an immense credit to our art.

4. Presuming, for argument's sake, that the obstacle for the time were overcome, yet the patient's life for the remainder of his days will be infinitely easier, through having a free passage by an artificial anus, instead of the usual weary, wearing, suffering existence of those who perpetually need powerful medicines to carry on strained defecation over a steadily growing intestine-contracting tumour.

5. In continuance of this idea, the growth of the tumour, be it benign or malignant, must be much slower, and its evil effects less felt, through its not being perpetually irritated and inflamed by the forcing over it of feces, hard or softened, and flatus.

6. Operations for obstruction, when caused by tumour, be it simple or malignant, are the most likely to prove successful, since there is no sloughing to fear, as in twisting, internal hernia, and intussusception.

7. Only a few days ago I was consulted by an elderly lady for difficulty of defecation, and from her history and complexion was led to make an examination, and found a scirrhus mass pressing into the rectum. I advised her using laxatives discreetly for some time, and suggested her ultimately submitting to this operation; for I strongly feel that we should not in all cases wait for absolute obstruction from tumour, but anticipate and prevent not only this extreme evil, but the distress, agony, and exhaustion, of severe impediment, by early formation of an artificial anus.

PROVIDENT DISPENSARIES OR INDEPENDENT SICK CLUBS FROM A PRACTICAL POINT OF VIEW.*

By D. TOLER T. MAUNSELL, M.B.T.C.D., Dublin.

IN a letter addressed to Dr. J. Rogers, the President of the English Poor-law Medical Officers' Association, which appeared in the *BRITISH MEDICAL JOURNAL* of the 20th January last, I gave some account of the history of provident dispensaries and the difficulty that had ever been experienced in establishing them; and, while believing that provident dispensaries or independent sick-clubs would afford the most desirable means of alleviating sickness amongst the labouring classes, I expressed an opinion that practically it would be found to be almost impossible to establish them on such an universal scale as would enable them to include all that portion of the community who, in the event of sickness befalling them, are liable to come under the action of the Poor Law.

* Read before the Public Medicine Section at the Annual Meeting of the British Medical Association in Birmingham, August 1872.

I do not think for this reason that the endeavour to establish provident dispensaries is the less desirable; but I believe that it is necessary to establish a dispensary system under the Poor Law as it exists in Ireland at present, for that class of the community above alluded to; and that, paradoxical as it may appear, the chaotic character of Poor-law medical relief in England, and more especially in London, has been one of the principal reasons of the want of success in establishing provident dispensaries.

The outdoor patient department of the various hospitals owes its origin to various causes. One is, that it acts as a feeder to the hospital, when a process of selection of the more interesting cases takes place. Another is the charitable purpose of alleviating the more trifling diseases of those unable to pay, or those diseases not likely to be benefited by indoor treatment. If an outdoor department be attached to a hospital, and no restriction be connected with application to it, as a matter of course it will be largely abused. Mr. Fairlie Clarke has stated that 1,156,016 persons, or more than one-fourth of the population of London, received gratuitous advice and assistance at the London hospitals during the last year. If we turn to the last Report of the Poor-law Board, we find that the average amount of out-door pauperism in the metropolitan district was 114,389. Of these, 70,532 were pauperised from sickness; and 36,669 was the average for the year of those destitute from temporary sickness (those to whom I have alluded as the class who, in the event of sickness befalling them, are liable to come under the action of the Poor Law). Mr. Fairlie Clarke does not give the average of outdoor hospital department relief for the year; and I should think that it would be difficult to do so with accuracy, whatever it may be. The difference between that average and 40,000, or, more correctly speaking, 36,669, will give the number of persons to whom provident dispensaries are applicable. For the 40,000 who either cannot or will not practise prudent virtue, an efficient system of Poor-law medical relief should be provided; and, until it is, outdoor hospital relief will be abused. Not having any well devised scheme in connexion with Poor-law medical relief, the hospitals must adopt the utmost latitude, as a matter of course; otherwise these institutions would be open to the charge of uncharitableness. And to use any effectual means of selection would require the attachment of a detective department to each. On the other hand, if a dispensary system under the Poor Law were established, and moderate care exercised in the distribution of tickets for medical relief, it would absorb all who could not pay, and it would act as the legitimate feeder for hospitals in other cases than accidents. It would also enable the hospitals to draw a hard and fast line, by which, if the patients were unable to pay, they might be sent to the district dispensary, if not actually requiring indoor treatment; and, if able to pay, and consequently unable to obtain a Poor-law medical relief ticket, they might be refused medical relief with propriety, when they would be obliged to avail themselves of the obvious alternative—either the provident dispensary or the general practitioner, who is the principal loser by the present system from a pecuniary point of view, whilst it leads to public demoralisation. I believe, therefore, that the first step towards establishing provident dispensaries will be the introduction of an efficient system of Poor-law medical relief. That class to whom these independent sick-clubs are applicable is intermediate between the poor and the professional classes; and, if we adopt Dr. Farr's classification, according to employment, we may arrive at an approximation of who they are and how many they are. Dr. Farr divides the people into the *Andrici*, the professional class, who number in England and Wales (in this classification, allusion is only made to persons aged twenty years and upwards) about 420,000, or 3.8 per cent. of the total, of whom 96,000 are resident in London, and who, we will assume, do not endeavour to obtain gratuitous medical advice. The *Okici*, or domestic class, number over 4,000,000, or 37.4 per cent., 665,000 of whom are resident in London; many of these crowd the out-patient department of the hospitals, who, under moderate supervision, need not do so. The *Agorici*, or commercial class, number close upon 600,000, or 4.6 per cent., 136,000 of whom reside in London, and of whom, also, we will assume that none obtain gratuitous medical advice. The *Georgici*, or agricultural class, number over 1,600,000, or 14.6 per cent., 25,000 of whom are said to be residents of London; these also will furnish a quota. The *Technici*, or industrial class, number close upon 4,000,000, or 34.1 per cent., 600,000 of whom reside in London; and to this class principally may be attributed the great demand for gratuitous medical relief. Over and above all these, there is an indefinite and non-productive class, which includes persons of rank and property, not returned under any occupation; persons supported by the community, etc. This class numbers over 600,000, or 5.5 per cent., over 100,000 of whom reside in London. We have thus close upon 11,000,000 persons aged twenty and upwards, with their families; from these, if we deduct the professional and com-