and the few crania hitherto accessible have favoured this view. Those, however, of the Kai Colos brought home by Baron von Hügel, and which probably represent the most primitive native population of the islands, show all the characters of the present Melanesian type without the slightest trace of Polynesian mixture. Their purity is shown by their wonderful similarity and by their very peculiar and strongly marked characters, discernible with equal facility in both sexes and in all ages. They are large; the average capacity of eight adult males being 1482 cubic centimetres, and with muscular ridges and impressions strongly developed. In proportion to their length, they are the narrowest crania known, having an average latitudinal index of only 66.3; not one has an index so high as 70.0; in one it descends as low as 61.9, which is below that of any other normal skull in the collection. The height in all very considerably exceeds the breadth, the average altitudinal index being 74.1. They thus belong to the most strongly marked hypsistenocephalic type. The zygomatic arches are very wide compared with the cranium. The brow-ridges are strongly marked, though less so than in the Australians. The orbits are low and quadrangular; the nasal bones short, though rather prominent, and the nasal aperture wide (index 57.1); the jaws prognathous, though not to an extreme degree, and the teeth large. The skeleton of the face thus conforms with what is generally found in the Melanesian or Oceanic negroes; but the features are on a large scale, and more strongly pronounced than in the inhabitants of many of the Hebridean and Papuan islands. The skulls of Tongans and Samoans, living on islands scarcely three hundred miles from the Fijis, present the greatest possible contrast to that just described. They are short and round, the latitudinal index being 82.6; the orbits are round; the nasal bones long and flat and the aperture narrow, the index being 44.3; and the jaws are not prognathous. It is well known that for a long time the Tongans have been in the habit of visiting the Fijis, especially the smaller islands to the east of the group, and that there is in the inhabitants of that region a considerable infusion of Tongan blood. Five skulls of natives of the small islands of Vanua Balava, where this influence is supposed to prevail, show a distinct deviation in every character from that of the Kai Colos; and these deviations are, without exception, in the direction of the Tongan or Polynesian type. The average latitudinal index is raised to 71.9; the nasal index is 50.0; the orbit intermediate in form; and the prognathism much reduced. No skulls have as yet been examined from the second large island Vanua Levu, and the numbers of those just described are probably not sufficient to draw any great conclusions from; but, as far as they go, they tend to show that, so far from the Fijians generally being a mixed race, the mass of them that inhabit the interior of the large islands are remarkably pure, and of the Melanesian or Papuan type in its most characteristic, almost exaggerated, form, but that the natives of the coast districts and outlying islands to the east show certain tendencies towards the brown Polynesian type; and, as these are the people with whom European visitors to the Fijis have mostly come into contact, an undue impression has been created as to the extent of the mingling of the races. At all events, little countenance is given by these facts to the view, which rests chiefly on the interpretation of some ancient legend, that at a former time the Tongan influence was much greater in the Fiji Islands than it is at present.

THE CÆSAREAN OPERATION IN THE UNITED KINGDOM: WITH A CONTINUATION OF THE STATISTICAL RECORD OF DR. RADFORD, FROM 1868 TO 1879.

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It may appear strange that an American writer should undertake the continuation of an English Cæsaean record; but the fact is, that the statistics were collected as a matter of necessity in the prosecution of another work, and not with any view to their being published abroad. They having been collected, it occurred to me that the table, which I have no intention of publishing here, should be presented for this purpose to the journal which contained, in 1868, the last tabular statement of Dr. Radford, amounting to a record of twenty-one cases.

After having tried in vain, on several occasions, to induce obstetrical workers in London and elsewhere to collect the Cæsaean statistics of the last ten years, I was obliged, in order to make use of the record, to search out the cases myself, and arrange them in tabular form. Having done this, I discovered some points of interest that I had not anticipated, and which must be new to many in Great Britain who have not examined thoroughly the records of mortality under this operation, which has been so much more fatal there than with us; and,

for this reason, I have sent the table to England, where it will be of much more interest than it would be in America.

Where I make any comparisons with the results of the Cæsaean section in the United States, I wish it to be distinctly understood that no spirit of rivalry enters into the question. We are in search of facts, and must take them as we find them, and not as we would like them to be. In a work entirely in the interest of science and humanity, we are only to compare results in order to find, if possible, a reason for the differences of success. We have in this special operation attained far more encouraging results than our brethren in Great Britain; and the reason of this is what most concerns us. The question of relative skill fortunately does not enter here. Skill in operating has utterly failed in many instances on both sides of the Atlantic; but, aside from this, we stand upon a different prognostic basis in the two countries, as will be admitted after this paper shall have been read. There is no country in the world (unless it might be China, whose inhabitants are remarkably exempt from the dangerous sequelæ of surgery) where skill and promptness in the Cæsaean operation promise better results than they do in the United States, and where there is a greater disparity of success between very early and moderately late operations. Having searched for unpublished cases in the United States much more thoroughly than has been done in any other country, and until they stand as forty-eight in a list of one hundred and twelve, or as three unpublished to four published, I think I may claim that my record for the United States represents fairly the result of the operation under all the circumstances, favourable and unfavourable, in which it has been performed.

I wish I could say as much for the thoroughness of the search made for the United Kingdom, either under Dr. Radford or myself; but candour forbids it; as I cannot believe that nine cases against one hundred and nine represent the unpublished Cæsaean operations. A search for lost cases ought to be made by special inquiry, until a full representative record shall have been completed. It would no doubt add to the proportion of deaths, as it has very materially done in the United States, having reduced the percentage of recoveries from 59.4 to 42.7. But this is of little consideration when weighed against the increased value of the statistics thereby produced. We want to know how many perished; why they did so; how we can make the proportion less; and what would have been the probable result if the operations had been performed at a very early stage in the labour, or under different conditions in the physical health and habits of the subjects. On whom does the responsibility of failure rest? Is it the fault of the midwife, accoucheur, or surgeon from too long delay? or is the woman, by reason of previous bad health, exhausting poverty, or pernicious habits, so bad a subject for the operation, that there is almost no hope of saving her by promptness of action, skill in operating, and the greatest possible care in the after-treatment, antiseptic and hygienic?

After a careful study of the whole question in the United States, I am fully satisfied that the gravity of the operation rests much more with the midwife or the accoucheur than with the surgeon in our country; and that delay has much more to answer for than the previous condition of the subject up to the hour of labour. Let the operation be performed early here, and we ought to save a large percentage of the women and children, amounting to sixty-five or seventy, to judge from the record of the past. By the term "early," I mean as soon as the os uteri is sufficiently open for drainage. No exact measure of time can be set, but it ought not to be later, as a general rule, than ten hours; and, in dwarfed subjects, should be as early as three or four hours, or even earlier, as exhaustion with them commences very soon after labour sets in.

When we examine the statistics of the United Kingdom, we find a very different and puzzling condition of things. The general impression among the most celebrated British obstetrical writers is, that the main reason of failure lies in the fact that so large a proportion of the women have been operated upon at a late period of labour, and that their exhausted condition determines, in large measure, the fatality of the result. If this be so, then an examination of the early operations of the record should show a fair proportion of women saved.

Of the 118 Cæsaean operations tabulated by Dr. Radford and myself, but 20 can be fairly recorded as having been performed *early*, as follows. Labour was artificially or accidentally induced in 5; in 1, the operation is simply reported as "early," but no time is given; in 1, labour lasted "a few hours"; and, in 13, it had continued from 3 or 4 hours to 14. Of these 20 women, only 4, or 20 per cent., recovered.

Again, of the whole 118, there were 22 who recovered. These were operated upon as follows: "early," 1; within 24 hours, 5; on the second day, 3; on the third day, 5; in 4 days, 1; in 5 days, 1; in 6 days, 1; in 12 days, 1; labour not commenced, 2; and time not stated, 2.

Table of Cases of Cæsarean Operations in the United Kingdom.

No.	Year.	Locality.	Operator.	Hospital.	Cause of Difficulty.	Age.	Height.	Conj. Diam.	Time in Labour.	Uterine Sutures.	Result to Woman.	Result to Child.	Cause of Death in Woman.	Lived after Operation.	References.
99	1869	London.	Dr. J. Braxton Hicks.	..	Transverse position, with pelvic tumour attached to right side of the cervix.	40	..	..	Labour slow and long; pulse 100; unfavourable.	2 wire sutures through uterus and abdomen.	Died.	Lived 7 months.	Peritonitis.	3¼ days.	<i>Trans. Obst. Soc. Lond.</i> , 1870, p. 99.
100	1869	Alvechurch, Worcestersh.	Mr. John S. Gaunt.	..	Malacosteon.	38	..	1½	2 days, or a little less.	..	Lived.	Lived.	..	..	<i>BRITISH MED. JOUR.</i> , Aug. 28, 1869, p. 240.
101	1869	Glasgow.	Dr. Arch. Neilson.	..	Deformed pelvis.	33	..	1½	3 or 4 hours' true labour pains.	12, carbolic catgut.	Died.	Alive.	Presumed embolism of the heart.	14 hours.	<i>Lancet</i> , March 1870, p. 336.
102	1870	Ellesmere.	Dr. John W. Roe.	Union Workhouse	Malacosteon.	35	..	..	3 days, at intervals.	..	Died.	Lived.	..	4 days 9 hours.	<i>Lancet</i> , July 30, p. 140.
103	1870	London.	Dr. Edw. Head.	London Hospital.	Malacosteon.	35	4 feet 6 in.	..	Not stated.	1, of silk.	Died.	Lived 4 hours.	..	15½ hrs.	<i>BRITISH MED. JOUR.</i> , Apr. 23, 1870, p. 409.
104	1871	Wolverhampton.	Mr. Henry Gibbons.	Wolverhampton Lying-in Ward.	Rachitic pelvis.	22	3 feet 10 in.	1½	A few hours: 5 to 7	..	Died.	Lived 9 days.	Vomiting and exhaustion.	40 hours.	<i>Trans. Obst. Soc. Lond.</i> , 1876, p. 378.
105	1871	Kintore, Scotland.	Dr. Andrew Inglis.	..	Rachitic pelvis.	..	3 feet 6 in.	2½	Over 48 hours.	..	Died.	Dead in a few momnts.	Shock and exhaustion.	Not a day.	<i>Edin. Med. Journal</i> , Oct. 1871.
106	1871	Romford.	Mr. Norris F. Davey.	..	Rachitic pelvis.	30	3 feet 8 in.	1½	23 hrs.; exhausted; pulse 72 an hour afterwards; well in 15 days.	8, of silver wire; operation in a sitting posture.	Lived.	..	..	..	<i>Lancet</i> , June 8, 1878, p. 826.
107	1872	Leeds.	Dr. Philip Foster.	..	Rachitic pelvis.	22	..	1 to 2 in.	Slight pains 2 days, with escape of liquor amnii.	..	Lived.	Dead.	..	..	<i>Lancet</i> , June 1, 1874, p. 753.
108	1872	Durham County.	Dr. G. E. Yarrow.	Workhouse.	Rachitic pelvis.	34	4 feet 2 in.	1½	Over 24 hours; poor and badly nourished.	..	Died.	Lived.	Probably septicæmia.	4 days 12 hours.	<i>Lancet</i> , Oct. 12, 1872, p. 523.
109	1873	Wisbech.	Mr. D. C. Nicholl.	..	Cancerous tumour, filling the pelvis.	30	..	1	Over 26 hours; was blanched and cachectic.	2 uterine sutures.	Died.	Dead.	Exhaustion; no peritonitis.	41 hours.	<i>Lancet</i> , June 7, 1873, p. 802.
110	1874	London.	Dr. Alfred Meadows.	St. Mary's Hospital.	Rachitic pelvis.	21	4 feet 1 in.	1½	Not stated.	4, catgut; knots all became united.	Died.	Lived 7½ mos.	Shock: re-opening of ut. wound.	32 hours.	<i>BRITISH MED. JOUR.</i> , Jan. 24, 1874, p. 106.
111	1875	London.	Dr. Wm. C. Grigg.	Queen Charlotte Lying-in Hospital.	Rachitic pelvis.	38	3 feet 6½ in.	1½	6½ hours; pulse 130.	1, continuous silk suture.	Died.	Lived.	Slight peritonitis; shock, vomiting, and exhaustion.	27 hours.	<i>BRITISH MED. JOUR.</i> , May 8, 1875, p. 609.
112	1875	London.	Dr. C. H. F. Routh.	..	Rachitic pelvis.	29	..	1½	All night, and next day to 4 P.M.	Carbolised catgut.	Died.	..	Septicæmia and heart-clot.	62½ hrs.	<i>Trans. Obstet. Soc. Lond.</i> , 1876, p. 378.
113	1875	Bury, Lancashire.	Mr. John Parks.	..	Rachitic pelvis.	32	..	..	"Early."	4, of silver wire.	Lived.	Dead.	..	..	<i>Lancet</i> , Feb. 12, 1876, p. 240.
114	1876	London.	Dr. A. L. Galabin.	Guy's Hospital.	Obstruction & induration of vagina.	41	..	..	6 days; pulse 150; fetus putrid.	..	Died.	Dead.	Shock.	Died on table.	<i>Trans. Obstet. Soc. Lond.</i> , 1877, p. 252.
115	1876	London.	Dr. James Edmunds.	Lond. Temp. Hospital.	Exostosis of ischium.	28	..	..	60 h.; well fed; circumstances good.	..	Lived.	Lived.	..	..	<i>Lancet</i> , Dec. 9, 1876, p. 818.
116	1877	London.	Mr. Henry Morris.	Middlesex Hospital.	Malacosteon.	40	..	Available 1½ in.	32 hours.	5, catgut.	Died.	Dead; craniotomy.	Peritonitis and exhaustion.	60 hours.	<i>Lancet</i> , April 6, 1878, p. 488.
117	1877	Baslow, Derbyshire.	Mr. E. M. Wrench.	..	Rachitic pelvis.	28	4 feet 3¾ in.	1½	35 hours.	..	Lived.	Lived.	..	..	<i>Lancet</i> , July 6, 1878, p. 4.
118	1878	London.	Dr. J. Braxton Hicks.	Guy's Hospital.	Cancer of vagina.	..	73 lbs.	..	Labour brought on in 8th month; 11th pregnancy.	..	Died.	..	..	24 hours.	<i>Trans. Obstet. Soc. Lond.</i> , 1879, p. 106.

Taking the record of the past ten years, we have 20 cases, with 6 recoveries, which is a much better proportionate result than that of the *early* operations taken by themselves. On examining the record of the 6 that recovered, we find that number 100 was in labour 2 days, or a little less, and that her child was saved; 106 was exhausted from a labour of 23 hours, yet recovered in 15 days, child lost; 105 was in labour over 2 days, child also lost; 113 is recorded as "early," but the child perished; 115 was in labour 60 hours, and was saved with her child; and number 117 was a dwarf of only 73 pounds' weight, and in labour 35 hours, and yet was saved and her child preserved.

Examining, again, the whole record, we learn that 10 women were saved out of 68 in the first 120 years, and 12 out of 50 in the last 20 years, or 1 in 6½ of the former, and 1 in 4½ of the latter; showing a decided improvement in the result of the operation in late years.

The causes which led to the operation in the 22 cases that recovered are as follows: cancer, 4; osteomalacia, 6; rickets, 5; fracture of the pelvis, 1; exostosis of the pelvis, 3; coxalgic ankylosis and spinal incurvation, 1; an erroneous puncture of a gravid uterus in ovariectomy, 1; and not stated, 1.

Thus we see the singular fact that all the promptly performed operations saved but 20 per cent.; and those of the last 20 years, without reference to time in labour, saved 24 per cent. As this may be considered the skilful period, let us note what happened under the "early operations" from 1859 to 1879. We find that 12 of the 50 operations

were performed in good season, and that 9 of the children were found alive, 3 of whom soon died. Of the 12 women, but 3 were saved, or 25 per cent., as compared to the 24 per cent. out of the whole 50.

We have, then, 18½ per cent. of women saved out of all the cases, 20 per cent. out of all the "early" operations, 25 per cent. out of the same class for the last 20 years, and 30 per cent. out of all the collected cases for the last 10 years.

I must confess that this calculation has a strange look. I had certainly formed a very different opinion with regard to the value of early over late Cæsarean operations in Great Britain, led by what I had discovered to be the case at home, and by the judgment of her own and continental obstetrical writers. England has been frequently censured by the latter for her delay in Cæsarean cases, and her great mortality has been attributed mainly to this assumed fact; but here we see that there must have been an error. Have I simply revealed a fallacy? or is it true that promptness in the Cæsarean operation in Great Britain brings only an exceptional result as compared with America and the continental countries?

I have held so forcibly to the opinion that delay was the great source of danger, that I am very loth to change it by making an exception in regard to any country. If promptness do not meet with its due reward of success in Great Britain, there must be some counteracting influence in the condition of the subject which neutralises it; for there has been no want of skill and care exercised in the management of

the cases of late years. Antiseptic spray, dressings, and the douche; the uterine suture, uterine and abdominal drainage, etc., have all failed again and again. The suturing of the uterine wound, which has saved some desperate cases in the United States, has failed in eight out of ten operations in Great Britain in the last ten years, and is in consequence held in very doubtful repute. Skill is at a discount; the operation is denominated the "forlorn hope"; the prognosis is very unfavourable; and the knife is avoided as the weapon of death, which it very often proves to be.

There is only one conclusion to be drawn from these facts: *the women are in large measure unfit to endure the operation.* Where they are fit, promptness must meet with encouraging success; where they are not, the time of operation can be of little moment.

The great factors of the disqualifying condition I believe to be poverty; the want of proper nutrition; the existence of malacosteon; and, superadded to these, the habitual drinking of beer or gin.

Fifty women suffering under malacosteon, and 29 deformed by rickets, have been operated upon in Great Britain, as far as is known, in 140 years. Of the former, but 6, or 12 per cent., recovered; and, of the latter, 5, or 17½ per cent. Of the last 20 operations, 10 were upon rachitic subjects; and 4 of the 6 recoveries were in this class. Of the whole 29 operations upon rachitic women, only 5 were early, and but 1 of these recovered. Of the other 24, 4 recovered, or 1 in 6. Cancerous subjects have recovered in larger proportion than either, 4 having been saved out of 10.

In the United States, no case of cancer or malacosteon has been operated upon; but rachitic subjects have constituted one-half of the cases (36 in 112), and 21 of these were dwarfs, from 3 ft. 2 in. to 4 ft. 8 in. Of the whole, 19, or 33½ per cent., recovered; 29, or a fraction over 51 per cent. of the other 56 cases, were saved. Fifteen rachitic women were operated upon in good season, and 10 recovered. In 17 operations of the 112, the uterine suture has been used, resulting in the preservation of 7 women. Rachitic subjects endure delay with us very badly, but promise well under a very early resort to the knife. Unfortunately for the result, postponement seems to be the rule, instead of the exception; and hence the high rate of death, which ought not to be under a proper management.

It is very evident that the Cæsarean operation is much less fatal to women in this country than to those of Great Britain, under what would seem to be almost exactly the same conditions, so far as the character and measure of the dystocia is concerned. But, aside from these, there are other features to be considered in many cases that do not appear in the published reports, based upon the respective habits of the women of the two countries, belonging to the classes to which the operation is very largely confined. It is well known by our surgeons that the worst subjects for accident or operation, even of moderate gravity, are the constant consumers of beer. With gin-drinkers I have had no experience, as such are uncommon here; but a very large one with whiskey-consumers. Those who drink whiskey to great excess are often lost after a moderate injury, and the measure of the habit has an important bearing on the prognosis. Fortunately for our Cæsarean operations, the women upon whom they are to be performed very rarely have their systems undermined by the drinking habit. This, I believe, is far from being the case in England; hence an important difference in the results of the operation as recorded in the two countries; hence, also, the successes in the London Temperance Hospital as compared with the other British hospitals.

Result to Children.—By the 22 successful operations, 15 children were extracted alive, 2 of whom died in a few minutes, leaving 13. How many of these continued to live a reasonable time, we are not informed; but we can judge, in a measure, from the results in the 20 cases which compose the appended table. From the 20 women, 12 children were removed alive; of whom, 2 died in a few moments, 1 in 4 hours, 1 in 9 days, 1 in 7 months, and 1 in 7½ months, leaving but 6 alive beyond this last age; 67 children were extracted alive from the 118 women, but a number of them must have soon died.

Laparo-Elytrotomy as a Substitute.—I cannot believe, with some writers, that this difficult operation has "a great future" before it: 7 cases and 4 deaths in 9 years do not indicate this. It has been tried twice in England with fatal results; and, in view of the local causes of fatality under the old operation, I cannot see that this one is likely to prove any less dangerous. The methods of Porro and Müller appear to have silenced it on the Continent.

Utero-Ovarian Amputation.—Porro's method of completing the Cæsarean section has, in contrast with laparo-elytrotomy, made a wonderful progress. Since the first Italian operation on May 21st, 1876, there have been 15 performed in Italy, with 7 women saved out of 16, one-third of the losses being due to the operation having been executed *in extremis*. In addition to these 16, there have been 20 others on the

Continent, making in all 36, with 17 recoveries, 30 of the cases having been hospital patients, one-half of whom were saved. This, for three years and a half, is a very remarkable record, and shows how the new has taken the place of the old operation in European countries. Of 13 operations after labours lasting from 3 to 15 hours, 8 were successful, which is far in excess of all former results in lying-in hospitals. To what degree this more easily performed substitute is capable of counteracting the fatal tendency under the old operation in England remains to be determined by experiment. It is certainly worthy of a trial, and particularly in the very fatal cases of malacosteon. As this disease has been regarded as beyond remedy, and Professor Späth of Vienna has stated that he cured a case by Porro's method in 1877, it should certainly be tried by English obstetrical operators, and particularly in hospitals, where it has in all probability "a great future". This operation was first devised in England at Guy's Hospital, in 1828, by Dr. James Blundell; and was first performed in the United States, by Dr. Horatio R. Storer of Boston, in 1869. There have been 8 operations, with 4 recoveries, in the Vienna Lying-in Hospital.

SUMMARY OF THE RESULTS OF FIFTEEN CASES OF BATTEY'S OPERATION.*

By ROBERT BATTEY, M.D.,

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THE peculiar surgical operation with which the name of the writer has been associated having been fully brought to the notice of the profession of Great Britain by Dr. Marion Sims, through the *BRITISH MEDICAL JOURNAL*, and having been twice, at least, practised by eminent British gynecologists, it is presumed that a brief summary of the results thus far obtained at the hands of the originator will not be without interest to the British Medical Association. The writer is therefore emboldened to offer the accompanying statement of his cases, with deductions drawn therefrom.

Mortality.—Of the fifteen cases, two have died, and thirteen have recovered, showing a mortality of 13⅓ per cent. In seven of the thirteen, the recovery was prompt and uninterrupted.

Secondary Results.—By this term is meant the results obtained at the expiration of six months from the operation.

Separating the thirteen recovered cases into three classes, we have three cases (a) wherein but one ovary was removed, three cases (b) of incomplete removal of both ovaries, and seven cases (c) of complete removal of both ovaries. Tabulating them in the order named, we find:

	a.	b.	c.
Morbid conditions disappeared	1	0	6
Morbid conditions partly disappeared	1	1	0
Not benefited	1	2	0
Too recent to determine	0	0	1
Total	3	3	7

Present Condition.—Continuing the same classification, we have:

	a.	b.	c.
Perfect health	1	0	4
Comfortable health	1	1	2
Not improved	1	2	0
Too recent	0	0	1
Total	3	3	7

If, therefore, we restrict the table rigidly to the seven cases of the operation proper, *i.e.*, those in which both ovaries were completely removed, we find that four of the patients are now in perfect health, two of them are in comfortable health, and one case is too recent for the result to be definitely determined.

Object of the Operation.—This is fourfold: first, to obviate the effects upon the general system of a vicious ovulation; secondly, to obviate the effects of an unrelieved menstrual molimen; thirdly, for the control of exhausting uterine hæmorrhages incident to ovulation; fourthly, to produce the vascular and nervous revolution in the system which attends upon the change of life.

Warrant for the Operation.—The writer foresaw from the first that this operation could not be laid down as the remedy for any particular disease or class of diseases; while, upon the other hand, in certain exceptional cases, the range of its applicability must be widely extended to a variety of diseased conditions. When asked, is it applicable to this disease or that disease? he found himself forced to answer both No and Yes. To escape this dilemma, he formulated the following

* Read in the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association in Cork, August 1879.