What the medical profession won't tell you about Whooping cough. 16/2/2009.

As luck would have it, a friend of mine has just been bestowed the "honour" of being labelled the "index" case of whooping cough in her district, despite the fact that the child who could well be the index case being diagnosed initially lives just outside that Health District's boundaries, and was diagnosed as having "bronchial croup".

Yes, you guessed it. The "croupy" child is vaccinated.

Despite this "croupy" child continuing to cough like other children, the ***vaccinated*** child hasn't got "whooping cough" because the child is "vaccinated". And even if it were admitted to be whooping cough, it would be unfair to call that child the index case either, since whooping cough doesn't just drop off Mars.

The only reason whooping cough circulates with episodic abandon in this country, is because the vaccine doesn't work, and whooping cough has a constant chain of infection.

This mother faced the usual "treatment" from her pro-vaccine doctor, being told that she should use erythromycin, and that her child should have been vaccinated. When she refused the antibiotics, the doctor became visibly angry. She pointed out that two Cochrane reviews on antibiotics showed that while antibiotics appear to stop a child expelling antibiotics into the air, they neither prevent whooping cough from developing in contacts, nor influence the course of the disease in the patient, and asked him how he thought antibiotics worked on whooping cough.

The doctor said that he didn't know.

I disagree with the Cochrane review, as my experience shows that antibiotics in whooping cough can make the patient worse, and there are three studies indicating that. But those studies aren't nearly well enough done, to provide "proof".

My friend could have pointed out that the Cochrane review team also found that the use of diphenhyramine, pertussis immunoglobulin, dexamethasone and salbutamol was as unspectacular as antibiotics. In otherwords, the medical profession, despite it's protestations, has nothing useful to offer you or your child.

That did not deter the Public Health Division who wanted to come and see her to discuss antibiotics and other matters. She told them why she wasn't going to do antibiotics, yet they too tried to pressure her. They wanted to come around to her house, but she refused and so they mailed out the information.

Uppermost on the pile was a sheet saying that while anti-vaccine people maintained the whooping cough vaccine didn't work, that that was completely incorrect; the vaccine is wonderful. Fortunately, my friend is surrounded by pro-vaccine people in her street and area, who just laughed and told her how their vaccinated children caught whooping cough as well, so the reality of the group is more than enough to reinforce her complete disbelief in the myths coming from the medical profession.

One of her neighbours suggested that she should go up in an airplane, since that's a successful old method of treating whooping cough. She asked my advice about it, and I provided her with the following information.

PUBLISHED SINCE 1863. Nº 42,190
TUESDAY, APRIL 4, 2000

N24

Kids with whooping cough got a real high

My late father was one of many club pilots in the late 1940s who took babies and young children in light aircraft (usually Austers) up to 10,000ft altitude for a certain length of time (maybe an hour) for the whooping cough "cure." It was believed that the reduction in oxygen at this altitude killed the whooping cough bacillus.

The flights were usually done with a GP's knowledge and approval. Picture a planeload of miserable, sick children with perhaps one adult to keep an eye on them, in bumpy, wintry weather, but it worked. Often, by the time the plane was back on the ground, the children were considerably better, with breathing difficulties much reduced.

It became a thing of the past when immunisation for babies came in.

V.Sanders.
Howick.

PUBLISHED SINCE 1863. Nº 42,185
WEDNESDAY, MARCH 29, 2000

Whooping cough cure NZH

In 1949 my three-month-old son developed whooping cough — he caught it from his two-year-old sister — and someone suggested taking the children up in an unpressurised aeroplane because this would cure them. At that time my husband had a friend who owned such a plane at Mangere and he readily agreed to try out this theory. I am pleased to say it worked and the children recovered very quickly.

Constance Johnson.
Waikowhai.

Jury out on altitude cure for whooping cough cases

A13 NZH Oct 1, 2004

With notified cases of whooping cough at epidemic levels — 350 new cases in August alone, says the Ministry of Health — sufferers will stop at nothing to find a cure.

Daniel Harpur-Gifkins, 13, and Michael Barr, 40, flew 3050m up into Marlborough's snow-capped mountains this week, hoping the flight would provide a miraculous release from continuous coughing.

It was reported last month that retired Nelson GP Miles Hursthouse said whooping cough sufferers needed to fly at an altitude of 3060m or more for 20 minutes to rid themselves of the ailment.

"It's a wee bit early to see any sort of results at the moment. I think normally it takes a couple of days before you can see an improvement, so we will just have to wait and see," said Daniel's mother, Leigh Gifkins.

But after the first night he still had the odd cough, she said.

"From what I've heard of other people going up in planes, like down south, it was one or two days until they could notice the difference," she said.

Michael Barr said he was feeling a lot better after his flight, which may finally have beaten the whooping cough after two months of coughing.

Last week the Ministry of Health revealed that notified cases of pertussis or whooping cough were at epidemic levels in New Zealand.

More than 350 cases were notified in August, and 70 per cent of cases were from the South Island.

Another 132 cases were notified in the week ending September 10.

The highest number of cases notified in a week in New Zealand was 148 during the last epidemic.

Medical Officer of Health Maree Leonard said pertussis — described by some as the 100-day cough — had continued to spread.

Ten per cent of the 140 reported cases had been in pre-schoolers.

— *NZPA*

Later, she mentioned that she had found a letter on it on Pubmed, so off I went to search. Using the words "altitude" and "whooping cough" I found 15 entries, two of which were in the BMJ in 1991:

Altitude treatment for whooping cough

PMID 2043838.

SIR,—Minerva recalls hearing about children with whooping cough being taken for short flights in light aircraft in an attempt to relieve the cough, and she asks when this belief in altitude treatment ceased and why.[1]

As a doctor who holds a commercial pilot's licence and spends some of his free time working for an air taxi service that flies sightseers around the Swiss Alps, I can assure Minerva that the belief in altitude treatment is by no means dead. In the past two years I have taken three children with persistent whooping cough on flights at the request of parents who had been told by their family doctors that this procedure was often recommended in the 1930s and might be worth a try.

When I was first approached by the dispatcher to fly one of these children ("Here, you're a doctor; this sounds like a job for you") I thought it highly unlikely that any therapeutic effect would be achieved. My scepticism was reinforced by a computer search of published reports just before the first flight. The few papers I found were in obscure journals and amounted to little more than collections of anecdotes and regurgitations of long held convictions dressed up in authentic sounding medical jargon. Hard data were lacking. Partly out of medical curiosity, however, and partly because the parents were obviously desperate to try anything, I went ahead with the flights. Before doing so I made it clear that neither I nor the company could guarantee therapeutic success.

As I had only three patients and was unable to think of a suitable placebo for a second treatment arm (take them up for an hour in a flight simulator?) I was never able to establish with any scientific certainty whether the "treatment" was effective. From the moment of take off all three children were glued, bug eyed, to the windows of the aeroplane as the alpine scenery sped by. They were clearly fascinated by the sensations of flight, and they stopped coughing. Shortly after we landed they started again. They tolerated the flights well, and there were no adverse events.

Whether flights for whooping cough are clinically effective or not, I highly recommend them. There can hardly be a treatment that gives more pleasure to patient and therapist.

P A CASEY

CH-3033 Wohlen/BE,
Switzerland

1 Minerva. Views. *BMJ* 1991;302:918. (13 April.)

Altitude treatment for whooping cough

PMID 1859970

SIR,—I was intrigued by Dr P A Casey's letter about the effect of altitude on non-productive coughing after pertussis in children.[1] My experience (after 19 years of uniformed service) is that this phenomenon is widely known. I discussed the situation with my senior colleagues and can report that we in the Royal Air Force medical branch have been using this particular mode of treatment for many years—over 40 to my knowledge.

Our standard approach is to decompress victims to 3000-3350 m above sea level, after which disappearance of the cough is the norm. The pathophysiology of this remains enigmatic. What is without doubt is that the treatment works. Our only difficulty has been to obtain suitable insurance cover for the decompression run, given that the "victim" has almost invariably been a civilian. Fortunately, I am not aware of any complications occasioned thereby.

D HALL

Princess of Wales Royal Air Force Hospital,
Ely,
Cambridgeshire CB6 1DN

1 Casey PA. Altitude treatment for whooping cough. *BMJ* 1991; 302:1212. (18 May.)

Needless to say, way back when it was discussed in the newspaper, New Zealand's "expert" on whooping cough, (and no doubt most doctors at large) rubbished the idea, saying:

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Pie in sky treatment

A WHOOPING cough epidemic is sweeping the country, but a supposed cure is being left in the clouds.

By STEVE HOPKINS

And it seems doctors just can't see it.

The cure, according to an Auckland woman, is a high altitude plane ride.

"My late father was one of many club pilots in the late 1940's who took babies and young children in light aircraft up to 10,000ft altitude as a whooping cough cure," says the woman who did not want to be named.

"It was believed the reduction in oxygen at this altitude killed the Whooping Cough bacillus.

She added: "In those days rural GP's, who had plane licences, would take the kids with the really bad cases up.

"Or they would refer them to friends with licences."

She said when the plane landed the children were considerably better.

Their breathing difficulties had improved dramatically.

But doctors doubt the woman's theory.

Whooping cough expert Dr Cameron Grant, from Aucklands Starship Childrens Hospital, said the aeroplane cure sounded more like a myth.

He said immunisation was now an effective way of preventing whooping cough. And antibiotics worked well to clear up coughing.

But the woman says her father's log book was full of entries detailing his trips and the reason for them.

She was not willing to show Truth the log book.

The Aero Club's chief flying instructor Robin Porter said the plane trips were a bit before his time, but they did happen.

"It didn't just happen in Auckland," he said. "It happened in clubs everywhere. I don't have any personal experience with it, but I remember sitting around the club when I was younger and hearing the pilots talking about it."

Whooping cough causes an estimated 300,000 deaths a year.

So let's have a look at some "myths" shall we?

Myth Number One:

All medical treatments for whooping cough, offered by doctors, work. (Note Dr Cameron Grant's statement above that ***antibiotics worked well to clear up the cough***.)

Fact ***Number One:***

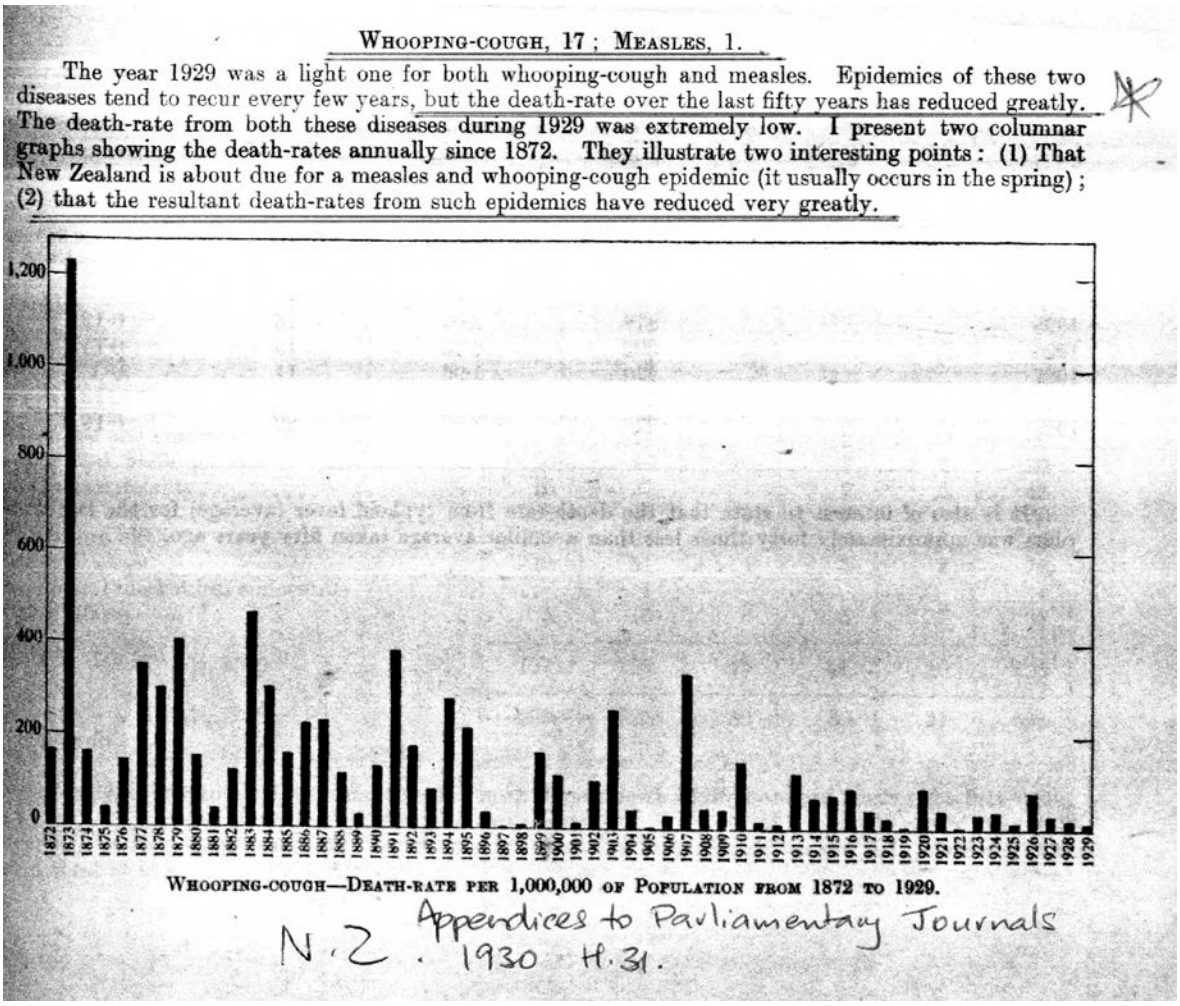
None of the treatments offered by doctors, have any positive influence on the course of the disease whatsoever.

Myth Number Two.

Whooping cough vaccines work.

Fact ***Number Two.***

As experience by the vast majority of New Zealanders, and as proven by the statistics collected by the Health Department of New Zealand, the whooping cough vaccine has made absolutely no impact into the disease whatsoever when compared with data before the vaccine was used. The decline in death rate was complete, long before vaccines even came into being. And they know this:



WHOOPING-COUGH, 17; MEASLES, 1.

The year 1929 was a light one for both whooping-cough and measles. Epidemics of these two diseases tend to recur every few years, but the death-rate over the last fifty years has reduced greatly. The death-rate from both these diseases during 1929 was extremely low. I present two columnar graphs showing the death-rates annually since 1872. They illustrate two interesting points: (1) That New Zealand is about due for a measles and whooping-cough epidemic (it usually occurs in the spring); (2) that the resultant death-rates from such epidemics have reduced very greatly.

WHOOPING-COUGH—DEATH-RATE PER 1,000,000 OF POPULATION FROM 1872 TO 1929.

N.Z. Appendices to Parliamentary Journals 1930 H.31.

After all, it was the report of the Director General of Health, which provided the data to Parliament. And the data and graphs in our first book, "Just a Little Prick", which are from the medical literature, prove that the vaccine has had no impact on the course of whooping cough in this country.

Myth Number Three.

There is no other treatment for whooping cough, other than what the medical profession has to offer.

Fact ***Number Three.***

Literally hundreds of thousands of New Zealanders over the ages have proven that to be wrong.

Amongst many possible treatments some are:

1) Vitamin C to neutralise Pertussis toxins.
2) Altitude treatment, as used by the UK Royal Air Force for as long as they can remember.
3) Homeopathics and herbals.

All of these, the medical profession will describe as quackery. If that is their definition of the above three categories, then surely, antibiotics, diphenhyramine, pertussis immunoglobulin, dexamethasone and salbutamol… should take the crown and pride of place within "quackery" definitions.

I predict that their objections to numbers 1 – 3 will range from:

1) All are unproven. (A bit rich, don't you think?)
2) As one medical professional said to my friend…"The vitamin C will destroy her kidneys and ruin her immune system". Hello? Vitamin C has been used for decades, with very good results, but again, that's not what the "system" prescribes.
3) With regard to the altitude treatment:
    a) Despite there never being any reported side effects, issues will be raised about "Health and safety". After all, if your child had a seizure, or a "turn", or even, perhaps, died, that would be the result of being so irresponsible. What if the plane crashed?
    b) If their dire predictions came about, would the plane operator be slapped with a charge of being party to an irresponsible act, or "manslaughter"?
4) Herbs and homeopathy. They just roll their eyes, say, "Quackery" and quote Professor Ernst's opinions.

Isn't the ultimate "proof" in the eating of the pudding? Aren't there enough of us, who have had success where they constantly fail, enough to wake the medical profession up? No. Because the medical profession usually wipes their hands of people who do things "their way", as my friend's doctor has done, so they never get to see what is possible, or how well it works.

Here's the rub to me. We have a situation where the medical profession will never admit to any vaccine not working, or to treatment being useless.

If your baby is hospitalized with whooping cough, the poor thing will be stuck in an oxygen tent, put on nebulizers, useless antibiotics, and punctured every day to satisfy their wanting to know a whole lot of meaningless "outcome points". This costs the country, thousands of dollars in taxpayer's money every day.

To take your whole family up in a twin engine airplane for an hour, to 10,000 feet for 30 minutes, will cost around $500.00 which equates to about three hours in hospital.

The UK Royal Air force and others, say that altitude treatment never fails.

"Anecdote … myth …. " screams a hypothetical medical detractor…. "Not an approved treatment"…

Yet, ***if*** the UK Air Force is not nuts, and states that the treatment never fails….

IF New Zealand doctors in the past who took seriously ill babies up in their own planes, or referred them to friends with licences were right …

IF … we are indeed in a recession, and …

IF we are indeed heading into the usual fourth yearly high number of whooping cough cases, wouldn't hospital doctors save themselves a lot of money, and time, if they organised medically monitored flights for hospitalized babies?

IF altitude therapy works, when everything doctors and hospitals offer is proven to not work, wouldn't altitude flights potentially save these babies a lot of breathing hassles, not to mention the parents a lot of sleepless nights?

"IF, IF, IF," they will say.

This situation will continue until such time as "reality" dawns and dispels their fog of mythology.

Until that time, the "risks" of using treatments which cause doctors to see you as a ten-headed ogre, are something you will have to weigh up for yourself. Be careful who you talk to. There is an increasing tendency, to slap a court order on people, and remove children to CYPS custody, for refusing supposed "lifesaving" treatment.

If you think your child has whooping cough, but the reactions and behaviour of the medical people around you in the past leads you to believe you've struck a practice full of dictatorial demagogues or despots, then you have two options:

1) Don't even go and see them in the first place. If the conveyor belt of illogical dogma, looks like it could backfire on you, it's best not even to open that door.
2) If you did open the door, had the PCR swab, the results were positive, and then you get dished up with an unreasoned rebuke, it might just be safer to acquiesce, making the right "Yes sir," noises, fill the useless prescription, pay your megabucks for no good reason, and then whatever you chose to do. The merry-go-round will continue.

Flying Holiday in New Zealand

ON Monday morning, Miss Eileen Steenson was flying herself over Christchurch, New Zealand, to have a quick look at the city; on Tuesday afternoon, she was back on her job, teaching at Methodist Ladies' College.

Miss Steenson, who holds a commercial flying licence and an instructor's licence, went to New Zealand for the school holidays, spent as instructor to the Auckland and the Nelson aero clubs.

This is her second visit to the Auckland Aero Club as a "guest instructor," and she returned this year by special invitation. "But I wanted to see something of the South Island," she explained yesterday, "so accepted a position with the Nelson club for a few weeks, too."

Early Start

Although it was interesting, it was also hard work, said Miss Steenson. "Some of my pupils had me out at 5.30 a.m., and often I was flying from daylight to dusk."

Weather and the nature of the country made flying conditions more difficult in New Zealand than in Australia, she added.

Most of her pupils were men—and included a Church of Christ missionary from the United States who was running a mission at Nelson. "He thought it would be helpful to his work as a padre if he could fly his own plane," Miss Steenson said. She gave him his first lesson and when she left he was progressing well.

Not all her time was spent instructing; she also did charter work. "Last year I did a variety of jobs, including some emergency flights with sick people, but this year most of the charter work was to take people on sight-seeing flights, especially over the sound from Nelson," she explained.

However, she did do a series of altitude flights with whooping-cough patients—mostly children. "We took them up above 10,000 feet and kept them at that altitude for about 40 minutes and later received a number of calls from parents to say the flight had proved beneficial to the children," said Miss Steenson.

Plane Ride for Baby Whooping Cough Cure

(Wireless to The New York Times and The Gazette.)

Vienna, September 4.—The first attempt to cure a baby boy of whooping cough by flying him in an open sports plane was made 10,000 feet above Vienna today.

The mother took the boy to the airport, but remained aground. Accompanied by Dr. Urbantschich, adjutant of the seventeenth group of the Nazi Flying Corps, the boy went up in a plane piloted by Storm Troop Leader Baier. The doctor announced himself well pleased with the results of the trip, which lasted forty minutes.

this structure differed so widely from that of any known trypanocidal agent, King, Lourie, and Yorke[10] prepared and investigated a number of related derivatives, such as guanidines, isothioureas, amidines, and amines connected by alkyl or alkylene chains of varying lengths. One of the diamidine compounds, 1:11-undecane diamidine, was exceptionally active against trypanosomes, and was also active against malaria. Shortly afterwards Ewins prepared a series of related compounds in which the central inert carbon chain was replaced by aromatic linkages. Certain of these preparations, and in particular 4:4'-diamidinostilbene, have very remarkable therapeutic properties. Not only are the aromatic diamidines active against experimental infections with trypanosomes but they exert a definite therapeutic effect on babesia, leishmania, and certain malarial infections. Clinical trials against sleeping sickness and kala-azar have already been instituted, and the preliminary results are not unhopeful, especially when it is remembered that the compounds at present being used are only the first of a chemical series which may be modified still further.

PROSTATIC CALCULI

As a rule prostatic calculi are found in conjunction with either benign enlargement of the prostate or a gland which has been the seat of chronic inflammation. In such cases the symptoms are those which may be ascribed to the prostate itself, but chills and fever may be initial indications of prostatic calculi and may appear quite independently of any urinary symptoms. T. L. Pool and G. J. Thompson of the Mayo Clinic[11] suggest that in any case of unexplained fever in adult males radiographs should be taken of the prostate. Small calculi which may pass casual examination may be found if the films are carefully inspected. Bouts of chill and fever are due to subacute prostatitis associated with calculi which lie within infected cavities in the gland. Only in selected cases is removal of prostatic calculi indicated, and the Mayo Clinic workers favour a transurethral operation. After removal of the calculi the cavity from which they have been extracted is "saucerized" by means of the resectoscope. These authors publish details of three cases in patients aged 50, 56, and 54 respectively, in one of which the stones were so large that it was necessary to push them into the bladder and then crush them with a lithotrite. The cavities in the prostate were then obliterated by removing the overhanging tissue with the resectoscope. The removal of calculi can be carried out with greater accuracy by the transurethral route than through an incision in the perineum, but a sound knowledge of urethral anatomy is essential, and care must be taken to avoid the adjacent rectum or a troublesome and distressing fistula may result.

HIGH-ALTITUDE FLYING FOR WHOOPING-COUGH

It is hoped that the recording angel will make an entry on the credit side for those German aviators who have assisted in the study of the effect of high altitudes upon whooping-cough. F. Pflug and H. Jungheim of Berlin report[12] their observations on 136 patients between the ages of 7 weeks and 49 years treated in this way. Usually one flight only was undertaken, to a height of approximately 16,000 feet and lasting sixty minutes. To get over the well-known seasonal variations in the course of whooping-cough two separate periods of the winter of 1938–9 were chosen, but the results were approximately the same in each. Some of the patients had received other treatment before the flights, and this was continued without alteration afterwards. It was found that about 82 per cent. of the patients showed a definite improvement within five days of soaring into the blue. While few paroxysms actually occurred during the flight the immediate effect was often to make the condition slightly worse for a short period. Improvement then set in and was maintained. It appears that most of the patients were in the second or third week of the disease. In fact the best results were obtained—namely, a 100 per cent. improvement in a few days—in those in the second week of the paroxysmal stage. The general improvement appeared to be much the same at all ages. Objective evidence was sought in the leucocyte picture, and it is claimed that a reduction in the lymphocytes by about 20 per cent. was found on an average in the first few days after the flight. No satisfactory explanation is offered for the results obtained, though such factors as lowered oxygen tension and altered humidity in the air at high altitudes are mentioned as possibilities. Psychological influences are held to be excluded because forty-six of the patients were under 3 years of age, twelve of them being infants, and the results were as good as with older children and adults. Eleven patients failed to benefit; in seven others who showed no benefit from one flight a second expedition to the higher reaches of the atmosphere brought about definite improvement.

[10] *Lancet*, 1937, **2**, 1360.
[11] *Proc. Mayo Clin.*, 1940, **15**, 77.
[12] *Klin. Wschr.*, 1939, **18**, 1247.

NOTICE TO CORRESPONDENTS

The need for strict economy in the use of paper for all purposes was emphasized by the Control of Paper Order made by the Ministry of Supply, which came into force in April. In view of the restrictions now imposed on the use of paper, and the increase in the rates of postage which came into operation on May 1, it will no longer be possible to acknowledge the receipt of letters and memoranda, etc., offered to the *British Medical Journal* for publication. The space devoted to correspondence has had to be curtailed, and readers are urged once again to be concise in all communications addressed to the Editor.

At a meeting of the Royal Society on May 23 Dr. Francis Peyton Rous of the Rockefeller Institute for Medical Research, New York, was elected a Foreign Member in recognition of his distinguished contributions to pathology, and particularly his pioneer studies on filterable tumours. The same honour was conferred on le Duc de Broglie, member of the French Academy, for his work on *x* rays and *x*-ray spectroscopy; on Professor Ross Granville Harrison of Yale University, chairman of the National Research Council of the United States, for his pioneer work on tissue culture and his researches on experimental animal morphology; and on Professor Gilbert Newton Lewis of the University of California, a founder of the electronic theory of valency and of a number of important branches of general chemistry.

The Secretary of State for the Colonies has appointed Sir Wilson Jameson, M.D., F.R.C.P., as his Medical Adviser, in succession to the late Dr. A. J. R. O'Brien. The appointment is a part-time one, and Sir Wilson Jameson will continue his duties as Dean of the London School of Hygiene and Tropical Medicine.

of gastric concretion, among which is included the shellac bezoar found among painters who drink alcoholic solutions of shellac; this apparently forms by precipitation of the resins if the addict rashly reverts to the more usual custom of drinking water. One excessively rare occurrence is the formation of a bezoar caused by prune or raisin seeds and skins, by celery or salsify fibres, by pumpkin, and once by peaches. As with other things rarity brings its reward, and prices of bezoars—when supplies were available—were apt to be high in olden times, for they enjoyed a great reputation as remedies for poisonous and pestilent diseases. Even the temporary use of small pieces cost a high figure; in the scale of values the porcupine and monkey bezoars held the place of honour. The peach bezoar must be almost beyond price.

HIGH FLYING FOR WHOOPERS

Some three years ago an article in the German medical press described how children with whooping-cough had been taken up in aeroplanes with resulting amelioration of their symptoms.[1] Now two members of the Berne school medical service record[2] their investigation of this therapy in Switzerland, with the co-operation of local aviation and transport companies. P. Lauener and E. Maeder made the first attempt in the late spring and the early summer of 1939, but weather conditions were particularly unpleasant, and it required further studies in 1940 and 1941 before enough patients had been obtained to make statistical analysis possible. The patients were mostly school children, but some infants and toddlers and a few adults were included in the series. Each flight lasted about 90 minutes, of which about 40 were spent at a height of approximately 11,000 to 12,000 ft. A sudden transition to great height by a rapid ascent was ruled out as being too dangerous. The flights generally took place in the mornings, and observations on weather conditions and humidity were included in the records. Only a few children showed any apprehension before going up, and this quickly disappeared once they were in the air. The infants and small children usually went to sleep at a height of about 6,000 ft., and they woke again only on landing. About 30% of the children and adults experienced some nausea—the only disturbance caused by the flights—and none of the infants was sick. The authors collected 250 patients all in the paroxysmal stage of whooping-cough. In 57 cases (22.8%) an abrupt cure took place after one flight. Within at the most two or three days, and often immediately after the flight, these patients stopped whooping, and their astonished parents exclaimed that with the flight the whole picture of coughing and vomiting "had blown away." Another 80 (32%) were "cured" more slowly, a period of eight days being necessary to secure freedom from paroxysms. Thus in 55% of cases the flights may be said to have given good results in a short enough time to justify the conclusion that they had some therapeutic effect. A further 411 cases were improved; in 69 there was no change. Two of this last group were taken up a second time with good effect, and 4 children were taken up as a prophylactic measure, none developing the disease. Of the series 12 were adults, and all but 1 were benefited. Here the possible psychological effect has to be considered, but this could not be present in the case of infants, only 10 out of 34 showing no appreciable improvement. No very clear relation with weather conditions was established: some days gave better results than others, and it appeared that low humidity was better than high.

The Berne authors conducted two further series of observations, one on the Jungfrau and the other in low-pressure chambers. A group of 23 children and 1 adult were taken up by railway to a height of over 10,000 ft. and kept there for three hours before returning to Berne. The results were disappointing. In 16 out of the 24 cases there was slight improvement but no sudden disappearance of symptoms as after the aeroplane flights. The results with the low-pressure chambers were better. A group of 68 children were studied. They spent 60 minutes in the pressure chamber, with about 15 minutes for decreasing the pressure, 30 minutes at a pressure corresponding to a height of about 14,000 ft., and another 15 minutes coming back to normal pressure. Sudden "cure," as after the aeroplane flights, occurred in 31%, undoubted improvement in 50%, no improvement in 16%, and in 3% the disease became worse. Clearly the low-pressure chamber had advantages over the aeroplane, for it is independent of weather conditions. The psychological effect of the flight is also eliminated. When we recall that during the first half of 1941 between 3,000 and 5,000 cases of whooping-cough were being notified weekly in this country, aircraft firms, we imagine, would look upon the opportunity as one not to be sneezed at. Lauener and Maeder do not explain how this unusual method of treatment works. Does exposure to low pressure have an effect on *H. pertussis*? Or does it break a link in the chain of an ill-conditioned cough reflex?

HOSPITAL CONTRIBUTORY AND PROVIDENT SCHEMES

Two brief reports that have reached us throw sidelights upon the revolutionary changes in health and medical services which underlie the Beveridge plan. While Sir William Beveridge proposes that 100% of the population should be entitled to domiciliary and hospital treatment as part of the benefits of a universal compulsory insurance scheme, the Bristol Hospitals Fund publishes an interesting analysis of hospital contributory schemes—that voluntary system of comparatively recent growth which provides for the collection of regular contributions towards the cost of hospital care and treatment from some 10,000,000 people.

The author of the Bristol memorandum, Mr. John Dodd, sees two dangers ahead. One is that financial provision for hospital and ancillary services should be grafted on to national health insurance and be operated through a multitude of competing approved societies. But the other danger is that the present haphazard and inadequate methods should indefinitely continue. He urges regionalization of hospital services and of hospital finance, with only one contributory scheme in each of the divisions into which the several regions would be split up, and also that all contributory schemes should pledge themselves to observe minimum standards of contribution and of benefit, to provide unlimited services in general wards for acute sickness and to practise universal reciprocity. In the second report the British Provident Association, whose subscribers are people of moderate means, discusses the position of provident schemes in the future. Its executive council and its medical advisory board are strongly of the opinion that, whatever form future medical services may take, the two principles of free choice of doctor, hospital, and nursing home and of non-interference in the relationship of doctor and patient should be maintained. The council has circularized its subscribers on this subject, and reports that there is a large body of opinion that the facilities available for medical and institutional treatment for those with moderate incomes are in need of improvement in two main directions—namely, suitable institutional accommodation at reason-

1 See *British Medical Journal*, 1940, **1**, 900.
2 *Schweiz. med. Wschr.*, 1942, **72**, 819.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Prophylaxis of the Common Cold

Q.—*For some years I have used intranasal drops of the following formula with some success in the prophylaxis of colds: Ephedrine, 0.5%; eucalyptol, 0.5%; camphor, 0.5%; castor oil, 0.5%; liquid paraffin, q.s. 100%. Is any harm likely to result from this practice?*

A.—The formula given is similar to that of the compound ephedrine spray of the *British Pharmaceutical Codex*, except that the *B.P.C.* formula contains 1% ephedrine. This preparation is presumably more effective as a spray than as drops. For those who dislike oily sprays, a solution containing 1% ephedrine hydrochloride and 4% dextrose in normal saline may be used as a spray. It is probable that too prolonged use of such a preparation in the form of drops will injure the mucous membrane. According to R. E. Ryan (*Proc. Mayo Clin.*, March 19, 1947) the excessive use of nose drops over a prolonged period has been observed to cause a clinical syndrome in human beings, which may be designated "vasomotor rhinitis medicamentosa." The effects were produced in rabbits which had nasal drops instilled four times daily over a period of ten weeks. Sections of the mucosa showed degeneration, then oedema, and finally metaplasia of the epithelium into the stratified squamous-cell type.

Concentrated Vitamins

Q.—*It is said that certain vitamins are incompatible and should not be taken together in concentrated form, as in the various composite vitamin tablets now widely sold. Is there any truth in this?*

A.—There would appear to be some confusion between the "concentrated form" of vitamins in certain medicinal products and exceptionally large doses of vitamins. While the latter are hardly practicable without the former, it is possible, and very widely customary, to take highly concentrated preparations of some vitamins at physiological levels. There is much scattered evidence to suggest that under certain experimental conditions large doses of one vitamin may affect the metabolism of others at more normal levels, but there does not seem to be any clear evidence at all for antagonistic action between vitamins fed at therapeutic levels or even considerably above this—that is, in the quantities practicable with many vitamin tablets and capsules on the market in this country and elsewhere. It must not be forgotten, however, that feeding one vitamin or a limited number of vitamins to a patient suffering from multiple vitamin deficiency may result in the flaring-up of symptoms due to the absence of an essential nutrient not being replaced by the therapeutic measure. Thus symptoms of beriberi have been evoked by administering therapeutic doses of nicotinic acid and riboflavin to pellagrins. The position of such patients, correctly described as suffering from deficiency disease, is doubtless very different from that of "normal" subjects taking multivitamin preparations as supplements to their ordinary food intake of nutrients.

Flying for Whooping-cough

Q.—*A patient wishes to try the effect of an aeroplane flight on his child who is suffering from whooping-cough. Is there any standard of (a) rate of climb, (b) height attained, and (c) rate of descent? What is the accepted explanation of the beneficial effects supposed to result from this treatment?*

A.—There is no standardized procedure for the treatment of whooping-cough by altitude. There has as yet been no conclusive evidence of its consistent efficacy, except in producing temporary alleviation of symptoms, in tests carried out in this country. A lowering of pressure can more conveniently be produced on the ground in a decompression chamber than in actual flight; a chamber is being used in Paris on a number of cases at present. Cases tested by the R.A.F. during the war were given a rate of climb and descent of 500 feet (152 m.) per minute and kept for one to two hours at 10,000 or 12,000 feet (3,050–3,650 m.) equivalent altitude. The temporary relief at low pressure appears to be due to the lowered friction in the respiratory passages of air at reduced density. No satisfactory theoretical basis has yet been put forward to account for any permanent improvement which may result.

Treatment of Mongolism

Q.—*Is there any new treatment for mongolism? I heard recently of the successful use of some endocrine therapy. Will such treatment benefit a mongol aged 18 months, or is it likely to do harm?*

A.—There is no evidence that mongolism is due to endocrine disturbance, and therefore no endocrine preparation can be justifiably used in treatment of the condition. It should be remembered that all but the lowest grades of mongols will show considerable mental development in the early years of life, and that any "treatment" given is likely to be "successful" in the sense that, after a varying delay, such functions as speech and walking are achieved. In the much over-weight, constipated mongol the use of thyroid extract in a non-specific fashion may produce some physical benefit.

Taste in the Mouth with Dentures

Q.—*Since first wearing dentures fifteen months ago a man aged 54 years has had a persistent sweet taste in his mouth, a dirty brown tongue, at times excessive salivation, and at others a dry condition which is sometimes relieved by removing one or other denture. He has had his sinuses, salivary ducts, alimentary tract, and kidneys x-rayed, and his blood tested for sugar and urea; all were normal. He has had two plastic sets, one vulcanite, and one stainless steel set. I would not care to label him neurotic, but I would like to help him. Can you advise?*

A.—Tastes in the mouth following insertion of dentures are sometimes due to imperfectly vulcanized or processed vulcanite or acrylic resin dentures. The patient in question has tried several sets of dentures, and it would therefore appear that the base has nothing to do with the condition in his particular case. Some patients do not tolerate dentures of any sort well, and any foreign body in the mouth may stimulate an excessive flow of saliva. Scrupulous cleanliness of the dentures, washing them after meals, etc., may be helpful; but if, as is probable, this has already been tried with no result, the patient must either undergo the inconvenience of the symptoms of which he complains or do without dentures.

Eunuchoidism

Q.—*Eight years ago a patient, now aged 25, had testes the size of a pea, with a feminine voice and bodily contours. There were no secondary sex characters, his penis measured 2¾ in. (6.5 cm.) and pubic hair was scanty. He was 4 ft. 11 in. (150 cm.) tall. A course of chorionic gonadotrophin was started at that time, but without obvious result. During 1940, following a course of testosterone propionate, the penis became bigger and the patient had marked erections and some ejaculation. In 1942 he again had a course of testosterone propionate, with good results. He was given three further courses in 1943, after which he achieved successful intercourse. Continued treatment with testosterone resulted in an increase in size of the penis almost to normal, moderate increase in size of the testes, a deeper voice, and better bodily development. His height is now 5 ft. 1½ in. (156 cm.). With cessation of treatment libido is disappearing and the patient is losing his self-confidence. Can you suggest further treatment?*

A.—The diagnosis in this case appears to be eunuchoidism—that is, a primary gonadal defect. This is based on the fact that the patient did not respond to gonadotrophic hormone, as he would have done with a primary pituitary defect, but he did respond to testosterone propionate, which increases the size of the penis but not of the gonads and, further, restores or produces potency without, however, fertility. On the other hand, his subnormal height would be more compatible with a primary pituitary defect. The increase in height during treat-

ment shows that the epiphyses are ununited, even at the age of 25, and this occurs with hypogonadism which is either primary or secondary. It also illustrates, contrary to general belief, that testosterone in therapeutic doses does not cause the epiphyses to unite, although in small animals, experimentally, it may do so, and premature union of the epiphyses occurs in sexual precocity.

The treatment is substitution therapy, and therefore relapse follows cessation of therapy. The writer has found that insertion of testosterone propionate tablets, at intervals of eight months, is the best treatment, and the usual dose is eight tablets of 100 mg. each. He has also found the best site to be in the subcutaneous fat of the lower abdomen. The technique consists in local procaine analgesia, an incision of 1 to 1.5 cm. down to and through the subcutaneous fat, and the insertion of sinus forceps to make a pocket. The tablets can be implanted either directly with ordinary forceps or preferably through a blunt trocar and cannula. Two pockets in the subcutaneous fat in different downward directions can be made through the same primary incision. One suture is sufficient. An alternative method of treatment is one or two 5-mg. tablets of methyl testosterone by mouth, or allowed to dissolve under the tongue, three times daily.

Estimation of Serum Phosphatase

Q.—*In what conditions is estimation of the serum phosphatase of value? What is the difference between acid and alkaline phosphatase, and what are regarded as the normal ranges of each in adult life and childhood? What are Kay units, King-and-Armstrong units, and Bodansky units?*

A.—Phosphatases are classified according to their origin or the *p*H at which they show maximum activity. Alkaline phosphatase, derived from osteoblastic and osteoclastic cells, has maximum activity between *p*H 9 and 10; while acid phosphatase from prostatic epithelium has maximum activity at about *p*H 4.8. Serum levels run parallel with the quantity of phosphatase-secreting tissue in the body. Serum alkaline phosphatase is therefore at a minimum in the normal healthy adult, and increases whenever bone is being formed or rapidly destroyed. The most important of such conditions are: normal osteogenesis in infancy, childhood, and adolescence; osteomalacia and rickets (including those forms caused by chronic azotaemia or chronic steatorrhoea), hyperparathyroidism, osteitis deformans, and the osteoblastic (as opposed to osteolytic) forms of osteogenic sarcoma. Small and inconstant increases occur also in multiple myeloma, carcinomatosis of bone, and during the healing of fractures. Serum alkaline phosphatase is also increased in obstructive jaundice, and irregularly and to a less extent in other types of jaundice; a level of over 30 King-and-Armstrong units in a jaundiced patient is pathognomonic of obstruction.

Serum acid phosphatase from prostatic mucosa is low in all normal subjects, being increased only when skeletal metastases of a primary carcinoma of the prostate have developed. Treatment with oestrogens, causing fibrosis of the metastases, leads to a reduction in serum acid phosphatase, so that serial estimations of the latter are used to control the treatment. The serum prostatic phosphatase is inactivated by incubation at 37° C. for one hour, or by addition of 25% ethyl alcohol; thus a very precise estimation can be made. Neither phosphatase has been prepared pure, so that their concentration is measured in arbitrary units, which depend on (1) incubation time, (2) nature of substrate, (3) nature of buffer, (4) *p*H of incubation, (5) volume of serum to which unit is calculated, and (6) temperature (always 38° C.). The usual methods of estimation are:

Method	Incubation Time	Buffer	*p*H	Volume of Serum	Nature of Unit	Normal Range: Adults	Normal Range: Children
Substrate Sodium Glycerophosphate				ml.		mg.	mg.
Kay	48 hrs.	None	7·6	1	1 mg. P liberated	0·08–0·21	0·17–0·38
Jenner and Kay	3 hrs.	Glycine NaOH	8·6	100	,, ,,	3–8	6–20
Bodansky	1 hr.	Veronal	8·6	100	,, ,,	1·5–4	5–12
Substrate Disodium Phenyl Phosphate							
King and Armstrong	30 mins.	Veronal	9·0	100	1 mg. phenol liberated	3–14	10–30
King	15 mins.	Na_2CO_3–$NaHCO_3$	10·0	100	,, ,, ,,	3–14	10–30
King, acid phosphatase	60 mins.	Sodium citrate—HCl	4·8	100	,, ,, ,,	1–3	

Infected Burn

Q.—*A woman spilled pure carbolic acid over her forearm and developed a superficial burn which became infected with Pseudomonas pyocyanea. As one area heals another becomes inflamed and breaks down; after daily dressings for eight months the condition remains unchanged. What treatment do you advise?*

A.—Presuming that no question of artefact arises in this case, it is suggested that some form of skin graft is most likely to lead to complete healing. A 1% acetic acid dressing will usually do much to clear up a superficial pyocyanea infection, when, after forty-eight hours' saline dressings, small patch grafts could be applied to the raw areas, dusted with penicillin powder, and fixed firmly by an occlusive pressure dressing for eight to ten days. If the whole area of skin on the back of the forearm is atrophic, some more radical form of plastic repair may in the end be the quickest solution of the problem—for example, a "flap" full-thickness graft from the anterior abdominal wall.

Terminology in Smallpox Vaccination

Q.—*Recently I saw a vaccination record card which stated that in cases of revaccination the result after forty-eight hours should be described as a "reaction of immunity," or an "accelerated reaction (vaccinoid)," or a "typical primary vaccinia." It was stressed that a report of "No reaction" would not be accepted. In the old days we used to describe the results as successful or unsuccessful. What is the "reaction of immunity"; and what is an "accelerated reaction"?*

A.—The form referred to, which appears to be similarly worded to that recommended by Unrra, uses terms which have been the subject of recent discussion. The term "reaction of immunity" has been applied to a local reaction reaching a maximum size on the second or third day and accompanied by elevation and itchiness of the site but without a vesicle. In many quarters this is considered to be unwarranted, because it may be due to weak lymph or even to sensitivity to protein or other substance in the lymph and not the living virus of vaccinia. This is the view taken by the Ministry of Health (see *Mon. Bull. Min. Hlth.*, 1947, **6**, 164). An "accelerated" (or vaccinoid) reaction is when the local reaction reaches a maximum size between three and seven days after inoculation and there is some degree of vesicle formation. This occurs in an individual who has a partial degree of immunity as a result of a previous vaccination.

Erythema Induratum

Q.—*In a case of erythema induratum scrofulosorum is there any effective treatment to clear or prevent the unsightly nodules on the legs?*

A.—The affection is a gummatous tuberculide. Overhaul of the patient or contacts sometimes reveals the source of infection, treatment of which is helpful. Rest and supporting bandages or stockings—warmth and support—are important. Injections of neoarsphenamine, 0.45 g. weekly for six injections, or gold or tuberculin often control the infection for long periods.

Rectal Prolapse

Q.—*What is the best treatment for rectal prolapse? Is an operation likely to effect a cure, and, if so, what is the operation of choice?*

A.—Rectal prolapse is essentially of two types—partial (or mucosal) and complete; in the latter the entire rectal wall is everted and extruded. The former is more frequently a

unilateral condition and rarely exceeds 2 in. (5 cm.) in length. The anal orifice remains central and circular. In procidentia (or complete prolapse) the protrusion may be 6 in. (15 cm.) or more, the anal orifice is frequently eccentric and slit-like, and a finger in the rectum will recognize the thickness due to the presence of the muscular coats. In either case in an adult, particularly if the condition is of long standing, operation offers the best solution. Mucosal prolapse is treated either by excision of the excess tissue, or preferably by ligature—in sections, in a manner similar to that used in treating internal haemorrhoids. In procidentia, amputation of the extruded portion (Miles's operation) is preferable to the many varieties of suspension or fixation. It need hardly be stressed that, before treating the prolapse as such, all possible underlying causes should be excluded.

NOTES AND COMMENTS

Sterilization of Syringes and Specula.—Messrs. JOHN FOSTER and C. H. LE MAY (Leeds) write: It is probable that no instrument is more frequently used in medicine and surgery than the hypodermic needle and glass syringe in their various forms. From time to time tragedies are recorded from poor sterilization, and queries appear in the *Journal* as to the best method of rendering the instrument sterile. In "Any Questions?" (Oct. 25, p. 680) a correspondent who had difficulties with liquor sterilizans and a phenoloid asks whether it is "possible to sterilize a spinal needle satisfactorily without an autoclave." Your reply recommends hot-air sterilization and boiling (presumably in water). If we can accept experiments on hypodermic syringes and needles as bearing on the question and if by satisfactory sterilization the instruments are to be rendered spore-free and left undamaged by the process, we would suggest that until new alloys and glasses are invented the answer should really be, "No."

Hot Air.—Hanne[3] using *B. mesentericus* in 17 hot-air sterilizers found that practically no spores were killed by this method, and that 50 out of 99 needles routinely sterilized by hot air in Berlin hospitals were non-sterile.

Boiling in Water.—While vegetative forms are rapidly killed by boiling in water, it is sometimes overlooked that killing spores by this method is a slow process. Boiling in water also rusts needles and gradually dissolves the glass of the syringe. Experiments in which all-glass syringes were boiled for 70 hours showed losses of weight of the order of 0.14%.[1]

Boiling in Alkali.—Garrod claims that five minutes' boiling in 2% Na_2CO_3 kills all spores.[2] This is a considerable speed-up on water-boiling, but unfortunately this (1) leaves a trace of alkali in the syringe barrel. We cannot say if this would contaminate aspirated fluid seriously, but it might upset certain local analgesics soluble only in acid solution. Harvey, Le May, and Shuttleworth, using the "A.C.10 (surgical)" method (essentially a sterilization by boiling Na_2CO_3), found the alkali effect negligible on "cobefrin," the initial *p*H of 2.8–3.6 being altered only to 4.6–5.2, which is regarded in dental practice anyhow as advantageous (at least two British manufacturers of local analgesic solutions for dental use, which as prepared are at low *p*H, issue "alkalinizing" preparations for use with them prior to injection). (2) Dissolves the glass (0.57% loss after 70 hours in an all-glass syringe), leading ultimately to a leaky piston. (3) Reduces but does not prevent rusting of the needle, which becomes obstructed at a rate which varies with the metal.

Boiling in Alkali and A.C.10.—This method[1,4] is applicable to syringes and protects the needles. Unfortunately the glass is attacked to the same extent as with 2% Na_2CO_3, and a certain amount of oily A.C.10 remains in the barrel and is difficult to remove. The A.C.10 has, however, been shown[1] to be biologically inert and non-irritant. Harvey,[4] however, has found it effective for dental work, though one of us reserves it for sharp-edged ophthalmic instruments, and uses boiling in sodium carbonate alone for syringes. It is true the damage to the syringe is slow, but we are now entering on a period of shortage when such minutiae may be of importance.

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4 Harvey, W., Le May, C. H., and Shuttleworth, C. W. (1947). *Proc. roy. Soc. Med.*, **40**, 507.

Lead Contamination of Water.—ALAN W. STEWART, D.Sc., F.R.I.C. (London, W.C.), writes: With reference to the question of lead contamination of water (Nov. 8, p. 758) I think the answer is, "No." The amount of lead stated by the questioner is 0.04 part per million. In the U.S.A. 0.1 part per million is accepted. It is probable that 0.5 part per million is safe for domestic use. Others consider this amount too high if the risk of lead poisoning is to be avoided. In the annual report of the Chief Medical Officer of the Ministry of Health, 1934, it is stated that 0.2 part per million may be tolerated, and this would probably be passed as safe. A water containing 1 part per million has hitherto been considered not dangerous provided it is certain that this amount is never exceeded. Other authorities tolerate 1/100 grain per gallon (0.143 part per million). From your reply it would take 50 litres of water to be consumed *daily* to reach the 2 mg. of the strength of lead 0.04 mg. per litre.

"Jugged Hair."—Prof. T. POMFRET KILNER (Oxford) writes: On the cover of the *British Medical Journal* of July 27, 1946, appeared in large print "Vinesthene Anaesthesia for Repair of Hair-lip and Cleft Palate." I expected to see some apology for this mis-spelling or at least a letter from some wag cleverly pulling the leg of the Editor who had allowed it to pass him. Either it went unnoticed or I overlooked reference to it in subsequent issues of the *Journal*. In the *Lancet* of Oct. 18 (p. 588) in an annotation I read, "since the feeding of a child with a double hair-lip is at best tedious. . . ." In the three issues since that date I have seen no correction of this mis-spelling. It is perhaps to be expected that a surgeon who receives a great many letters about this condition from parents and general practitioners should have come across this mistake frequently, but it seems odd that the editors of our two leading medical journals should have allowed it to pass. For twenty years or more I have refused to use the term at all, and I and those who have worked with me have adopted the terminology "cleft lip," first suggested, I believe, by Ritchie, of St. Paul, Minnesota—more descriptive, less inapt, and less likely to lead to incorrect spelling.

*** [Prof. Kilner is right. We must have been thinking of split hairs.—ED., *B.M.J.*]

Examination of Saliva.—Mr. G. E. P. PHILPOTS, D.D.S. (Melbourne, Victoria), writes: With reference to the question and answer (Aug. 23, p. 318) under this heading, as several medical friends have asked me to make comments, it was thought the following remarks might be of interest to your readers. The taking of plenty of milk and a "sufficient" dosage of calcium and vitamin D for the two years prior to the time of being reported would not prevent dental caries developing if the ill effects of an unbalanced diet over a period from early childhood have existed. The proposed test of the saliva for acidity would be of value if it showed an amphoteric reaction to litmus paper. I recall that my friend and teacher, the late Dr. E. C. Kirk, when dean of the Dental School of the University of Pennsylvania, was a physiological chemist and keen student of salivary analysis. In cases similar to that reported above he always (generally) found the (mixed) saliva would give an amphoteric reaction due to the presence of acid sodium phosphate. This reaction indicated a susceptibility to dental caries caused by excessive consumption of refined sugars and starches, which in turn causes an excess of hypothetical H_2CO_3. There follows a chemical reaction with the acid sodium phosphate in the saliva, represented by the following equation:

$$H_2CO_3 + Na_2HPO_4 = NaH_2PO_4 + NaHCO_3$$

Normal saliva is a supersaturated solution of calcium phosphate. When there is an excess of acid sodium phosphate present, such excess is due to the eating of an excess of refined starches and sugars and aggravated by lack of vitamin D. The type of patient mentioned does not respond to diet treatment, but, strange to relate, when the age of about 25 years is reached there seems to be a period of immunity to dental caries, which, however, sets in again a few years later. The excessive consumption of starches and sugars can in many mouths produce a saliva which erodes the enamel, thus allowing the free entry of various decalcifying bacteria always present in the oral cavity to do their work of destruction.

"Cancer Research Society."—A deceased client of Messrs. Farrington and Winterton, solicitors, has bequeathed a one-third share in her residuary estate to the "Cancer Research Society." Inquiries have failed to discover whether this society exists. Messrs. Farrington and Winterton would be glad to receive any information at 12a, Marlborough Place, Brighton, 1.

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FIG. 1.—Entering the decompressor.

HIGH FLYING AND DECOMPRESSION TREATMENT OF WHOOPING-COUGH

BY

H. STANLEY BANKS, M.D., F.R.C.P.

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In 1927 an air pilot of Strasbourg took his child suffering from whooping-cough for a flight to a height of 10,000 feet (3,050 metres). The child's cough was said to have ceased dramatically after three days. Before the war Dr. W. Matter (1946), of Strasbourg, did much pioneer work on aeroplane flights for whooping-cough, and the practice became popular in many countries of Europe and to some extent in South America. As a result of this and of some work done in Switzerland (P. Lauener and E. Maeder, 1942) during the war, several conclusions were reached : (1) that the best results were obtained in the fifth and sixth weeks of the disease ; (2) that several flights were no better than one ; (3) that an altitude greater than 10,000 feet was rarely necessary ; (4) that the extreme cold at this altitude was harmful to some patients, and that for this reason the closed plane was better than the open one.

Claims for the Treatment

In 1939 a controlled experiment in Berlin on 88 children treated by aeroplane flights and 33 children treated under similar atmospheric pressures in the decompression chamber yielded slightly superior results for the latter, and in addition none were made worse by the decompression treatment. The highest claims made for the treatment about the year 1945 were : approximately 30% cured—that is, cessation of paroxysms within four days ; 30% improved—that is, marked diminution of the paroxysms within seven to 10 days ; and 40% no change or worse after seven days. At the same time it was generally agreed that the beneficial effect of the treatment depended upon low barometric pressure and low oxygen tension in the alveolar air rather than upon the actual purity of the air breathed. These results were statistically open to considerable criticism owing to the absence of controlled studies and the difficulties of assessment of cure and improvement in out-patients.

In 1946 Baldry and Richou published their first report on 300 cases treated in a decompression chamber in Paris. Selected cases of all ages from 2 months to 40 years were treated, and of those followed up for 21 days (44% of the total) there were 22% of cures in four days, 51% "improved," and 4% whose paroxysms were aggravated for some days after the treatment. Up to 1948 Richou had treated some 6,000 cases in Paris. His published conclusions include the following principles : (1) that the results obtained were independent of age and weight ; (2) that the best time for the treatment is after the third week of the disease, preferably the fourth, fifth, or sixth ; (3) that repetition of the treatment does not increase the percentage of successes—that is, a good result is obtained with the first treatment or not at all ; (4) that contra-indications for the treatment are fever, respiratory and cardiac complications, epistaxis and any haemorrhage, nasopharyngeal infections, ear infections, hernia, surgical emphysema, and malnutrition. The rarefied air-pressure is regarded as the chief factor in a beneficial result. How it acts is unknown. It has been suggested that it may lead to a relaxation of bronchial muscle, damping down of the cough reflex, or alteration of the bronchial mucosa in some unknown way.

The method has its severe critics. In 1948 Bergquist treated 45 children in Stockholm—20 by aeroplane at 11,000 feet (3,350 metres) for 45 minutes, and 25 at similar low pressure in a chamber for 45 minutes. He stated that an analysis of the course of the disease, the frequency of paroxysms and vomiting, duration of the disease, bacillary findings, and changes in the blood picture showed no significant difference, and in his opinion flying and low-pressure chambers were completely without value in treatment of whooping-cough.

It is clear that a critical assessment of the treatment is required, preferably in in-patients, with radiological and haematological observations before and after. This is not easy to arrange, and to a large extent it will probably be

FIG. 2.—Inside the decompression chamber. Note the observation windows for use of doctor and technician, the telephone, the thermometer, and oxygen masks (for use in emergency only).

necessary to conduct observations on out-patients. One point that has not been established is the effect of the treatment on the various degrees of pulmonary collapse which so often complicate cases of whooping-cough in the later stages of the disease and which may not be obvious on ordinary physical examination. It is certain, however, that if there are any accompanying acute symptoms such as fever or cyanosis, or any signs of acute bronchitis, the treatment is contraindicated.

Conclusions

The conclusion at present from the work done is that the treatment is not a cure for whooping-cough in its early stages or for complicated whooping-cough. Its object is to clear up the persistent cough and vomiting of the later stages (e.g., the fourth to seventh weeks) in otherwise uncomplicated cases. Its success has still to be confirmed, and, in any case, seems to be limited. Trials are now proceeding at Park Hospital, where a renovated ex-R.A.F. decompression chamber has recently come into use. Of the 32 cases so far treated at the hospital, reports have been received on 22. In four cases the coughing had virtually ceased within four days and no vomiting occurred after the treatment; three cases were markedly improved, with very little cough and no vomiting seven days after treatment; and in 15 cases there was gradual improvement or no change. In one of the "cured" cases a symptomless right-middle-lobe collapse had completely re-expanded within seven days.

Public transport should not be used for cases of whooping-cough during the infectious stage, which is generally held to include only the first five weeks from onset of the disease, even although cough, whoop, and vomiting continue beyond that time. Applications for treatment should normally be made by doctors to the Emergency Bed Service, 10, Old Jewry, E.C.2 (Tel., Monarch 3000).

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COMMONWEALTH AND EMPIRE TUBERCULOSIS CONFERENCE

PROBLEMS OF RESETTLEMENT

The main sessions of the second Commonwealth and Empire Health and Tuberculosis Conference were reported in the *Journal* of July 16 (p. 150). One of the closing sessions was devoted to psychological and social readaptation.

Dr. W. E. CHIESMAN (Medical Adviser to the Treasury) spoke of the difficulties which attended re-employment. In a group like the Civil Service such cases were numbered in hundreds. In 1948, with a working population of 300,000, there were between 500 and 600 primary and relapsed cases of tuberculosis. He had been surprised to find the difference of opinion which existed about the length of time for which a patient required treatment. Sometimes a man was discharged from hospital and told he could return to work almost immediately, while the man's own doctor recommended another six months' convalescence. The criteria of fitness to return to work needed clarification. Another point was that the returned patient might have a certain effect on his fellow workers. General propaganda had developed a fear of tuberculosis and an awareness of the disease, and it was natural that both employers and fellow-employees should desire reassurance. A satisfactory answer to these questions would clear up some of the main difficulties of rehabilitation. It was surely not unreasonable to employ persons whom the chest physician considered to be safe, but the follow-up ought to be improved by asking the patient to get an assurance from his doctor at regular intervals that he was not a potential danger to his associates. If there was a risk from tuberculous patients let it be assessed as accurately as possible, because the future policy for the re-employment of these people must depend upon striking a proper balance between what was good for the patient and what was safe for the community.

A number of industrialists and trade union leaders took part in the discussion on this subject. A description of work in a rheumatic unit was given by Dr. J. F. BACH (St. Stephen's Hospital, London), who said, incidentally, that he believed that happy and contented people did not develop rheumatoid arthritis. Chronic anxiety and shock immediately preceded the onset so often that he felt these must be trigger factors. In his clinic patients were selected for in-patient treatment according to the assessment of personality rather than according to the degree of joint deformity.

Dr. LEWIS MOORMAN (Oklahoma State Medical Association) discussed the psychology of the doctor–patient relationship in the readaptation to industry of sufferers from chronic disease. All good doctors who managed cases of tuberculosis became good psychologists and psychiatrists. A physician should always impress on his patient the importance of the partnership between patient and doctor in the difficult task of getting well.

Dr. TREVOR LLOYD DAVIES (Boots Pure Drug Company) said that the great difficulty about special centres for rehabilitation was that it was impossible to re-create the social relationship as it existed in normal industry. He realized that it was necessary to have these centres in order to get the patient back to industry, but at the very earliest opportunity the patient should return to normal industry. Something to the same effect was said by Miss OLWEN TAYLOR DAVIES, welfare liaison officer at Papworth Village Settlement. All the schemes developed under the Disabled Persons Employment Act, as well as voluntary schemes, she said, were satisfactory only in so far as they restored the individual to economic independence and a normal life. The segregation of unfit workers was not likely to lead to complete readaptation. Experience at Papworth had shown that the patients most easily lost their sense of inferiority when working with fit people.

Infected Milk

At the final session of the Conference Dr. EDITH SUMMERSKILL, M.P., Parliamentary Secretary to the Ministry of Food, said no Government could ignore the danger to the health of the community arising from infected milk. The ultimate objective was to secure that all milk sold for domestic consumption should be in closed containers, fitted with overlapping caps to prevent the contamination of the mouth of the bottle, and that the milk should be tuberculin-tested, pasteurized, or sterilized. Unfortunately, this new policy could not be applied immediately to the country as a whole because of insufficiency of pasteurizing and bottling plants. The makers of these plants were so inundated with orders that it would take a long time to complete them. It was therefore proposed to apply the restrictions first to groups of large urban areas, and then to extend them so far as practicable to rural areas. It was probable that some twelve months would elapse before any area would be specified for this purpose, but it was hoped to complete the specifying of all urban areas within five years and most, if not all, of the rural areas within ten years.

Mr. J. N. RITCHIE (Ministry of Agriculture and Fisheries) said that at the end of May last there were 39,997 attested herds, but progress was not equal throughout the country, and the greatest progress was not necessarily attained where the incidence was originally low. The number of cattle in tubercle-free herds (attested and T.T.) in Great Britain was approximately 1,780,000. The sale of tubercle-free milk to Milk Marketing Boards for the year ended March 31, 1948, was 354 million gallons, compared with 141.6 million gallons for the year ended March 31, 1943.

According to a report in the *News Chronicle* (July 1), the health committee of the Marylebone Metropolitan Borough Council has decided to press for revision of the exemption of Government departments and Crown properties from inspection by officers of a local authority. The medical officer of health is said to have been denied access to inspect staff canteens in Government departments.

DECOMPRESSION TREATMENT OF WHOOPING-COUGH

A CLINICAL SURVEY OF 903 CASES

BY

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Weekly or twice-weekly clinic sessions for the treatment of whooping-cough by low air-pressure in a decompression chamber have been held in this hospital since May, 1949, except for short periods when the prevalence of the disease was very low. The chamber was purchased from the Royal Air Force by the Ministry of Health in 1948, was conveyed to its present site by the London County Council, and was reconditioned and refitted by the Lewisham Group Hospital Management Committee. At that time considerable public interest had been aroused in high flying and decompression treatment, and, by request, I published a brief preliminary account of it with illustrations of the chamber in action (Banks, 1949).

Selection and Examination of Patients

During the five and a half years 903 patients were treated, but the results could be assessed in only 782, of whom 686 were out-patients and 96 in-patients. The out-patients were sent by their doctors by arrangement with the Emergency Bed Service, and in accordance with a simple plan. Patients were generally accepted only if they had been coughing for about three weeks or more, and the doctor was asked to instruct the parent to take to the clinic a record of the number of coughs, whoops, and vomits observed during the 48 hours before attendance. Every case was personally interviewed and examined by me or by my colleague Dr. L. J. M. Laurent. The history was checked and the estimated day of disease recorded. The record of coughs and vomits of food day and night for two days was verified; particulars of appetite, activity, lethargy, fretfulness, or loss of weight were noted; and the parent was asked whether she thought the condition was stationary, improving, or getting worse. The faeces, tympanic membranes, and chest were examined, the temperature was taken, any cyanosis or tachypnoea was noted, and in a very large proportion of cases the chest was radiographed.

I soon learned to reject the more acutely ill cases, especially those with pyrexia, or cyanosis, or with more than a minimal degree of pulmonary collapse as shown radiographically, usually by shadows filling the cardiophrenic angles. The cases deemed too ill for decompression were either admitted to hospital or sent home with a letter to the doctor advising rest in bed and, if necessary, treatment later for pulmonary collapse. Minimal atelectasis in a bright, active, apyrexial child was not regarded as a contraindication, nor were rhonchi and other signs of bronchitis without fever.

Decompression Treatment

The selected cases, up to six or eight at a time, went into the chamber accompanied by a nurse or ward orderly, or by the parent in the case of some infants or a young frightened child. In cold weather the children were kept warm by hot bottles and blankets, the chamber itself having been pre-heated by an electric radiator. Picture books and toys were provided and stories were read to the younger children, usually until they fell asleep lulled by the hum of the motor. Oxygen was laid on inside the chamber, but was used only once in five and a half years. A telephone connected the occupants of the chamber with the porter-operator, who watched them through a porthole window during the whole course of the treatment. The pressure of air in the chamber was reduced progressively for about 20 minutes until the equivalent of a height of 12,000 feet (3,660 metres) was reached. This low pressure was maintained for 45 minutes and then gradually increased during the 20 to 25 minutes "descent." The treatment thus lasted about 90 minutes. Some pain in the ears and deafness were commonly experienced during the "descent" and for a short time thereafter. In this routine a hitch occurred only on two occasions, once when a woman in the chamber became hysterical, and once when the motor failed. In both cases "ground level" was regained without incident.

Assessment of Results

A form was provided upon which the parent or ward staff was asked to record the time and character of each cough and food vomit during a period of 48 hours *commencing one week after the treatment*; in addition they were asked to report in a few words their impressions of the progress or otherwise of the child from the date of treatment until the date of the report. The completed forms were sent to me generally about the tenth day after decompression. They were delayed for two weeks or so in a small proportion and occasionally a reminder had to be sent out after about two weeks. The factual report on coughs and vomits, and the mother's or ward sister's statement of her impressions of the result of the treatment, taken in conjunction with the recorded data before treatment and the stage of the disease, formed the basis upon which the assessment of the results was made. The factual report on coughs and vomits was usually far better done by the parent than by the ward staff, although the "summing up" by the ward staff after a week was quite good. A feature of this work, however, was the obvious care taken by most of the parents to produce an accurate factual record of coughs and vomits for the 48-hour period. Sometimes the statement of their impressions seemed unduly optimistic in view of the factual report, and in such cases it was treated with reserve.

The assessment of the results on this basis was usually not difficult. It was made by me personally in the great majority of cases, and by Dr. Laurent in my absence. Our marking was conservative and showed almost complete agreement. A sample series of 462 cases was assessed by Dr. Laurent independently, without knowledge of the marking which had already been given by me. His marking turned out to be the same as mine except in 14 cases—a difference of assessment of only 3% between two observers working independently.

The following classification of results was adopted:

XX = Improvement marked and rapid in four to seven days or less, with virtual cessation of the paroxysmal cough.

X = Improvement more gradual over seven to ten days, but probably significant.

X− = Improvement likely to be attributable to the natural progress of the disease at that stage.

O = No improvement in 10 days.

OO = Worse. (Cases excepted in which increased cough and expectoration was limited to 24–48 hours; this was not uncommon.)

TABLE I.—*Cases Treated but Not Assessed*

	1949	1950	1951	1952	1953	1954	Total
Disease too mild ..	1	7	7	6	5	—	26
,, ,, acute ..	2	5	1	1	—	—	9
,, ,, early* ..	—	8	1	1	2	1	13
No report	—	12	9	12	25	15	73
Total ..	3	32	18	20	32	16	121

* Less than 2½ weeks of disease.

Cases Excluded from Assessment (Table I)

Mild Cases.—Twenty-six cases, though treated, were so mild that no accurate assessment of the result was possible.

Acutely Ill Cases.—Nine cases with mild pyrexia or cyanosis and atelectasis were treated by decompression

experimentally in the first year or two. Such cases were thereafter excluded, as this was found to be wrong practice.

Early Cases.—Decompression is a physical treatment which cannot be expected to stem the advance of the disease in the first two and a half to three weeks. Although there was an occasional apparent exception to this rule the assessment of results probably gained in precision by the exclusion of the 13 cases treated at a stage of the disease earlier than two and a half weeks.

No Report.—Seventy-three treated cases had to be excluded because no report on the results was received.

Results

Effect on Cough, Vomiting, and General Conditions.—Table II indicates that marked rapid improvement with virtual cessation of paroxysmal cough (XX) occurred in

TABLE II.—*Cases Treated by Decompression and Assessed Results*

Classified Result*	1949	1950	1951	1952	1953	1954	Total	%
XX	20	68	55	30	26	21	220	28·2
X	21	93	60	33	36	23	266	34·1
X-	15	48	34	17	16	11	141	18·0
O	18	36	37	18	29	13	151	19·2
OO	—	3	—	1	—	—	4	0·5
Total assessed ..	74	248	186	99	107	68	782	100·0

* See text.

28.2% of the assessed cases, and slower but probably significant improvement (X) in a further 34.1%; while in 37.7% the treatment appeared to have no effect.

Effect on Vomiting.—A particularly valuable sequel to the treatment in many cases was the relief of vomiting (Table III). Among the 427 children who were vomiting

TABLE III.—*Cases Vomiting Food (more than once daily)*

	1949	1950	1951	1952	1953	1954	Total	%
Vomiting stopped	18	84	60	33	30	21	246	57·7
,, reduced	10	30	22	7	10	6	85	20·0
,, unrelieved ..	9	34	22	12	15	4	96	22·3
Total ..	37	148	104	52	55	31	427	100·0

food more than once daily just before treatment, the vomiting stopped fairly abruptly in 57.7%, was reduced in a further 20%, and was unrelieved in 22.3%. This was something for which the parents were especially grateful.

Influence of Sex.—Table IV shows the sex incidence of the assessed cases. There is a considerable preponderance of females, as in all statistics of whooping-cough. This

TABLE IV.—*Sex Incidence of Assessed Cases*

	1949	1950	1951	1952	1953	1954	Total
Males	36	112	80	41	44	28	341
Females	38	136	106	58	63	40	441

is an unexplained feature of the disease. The assessed results showed no relation to sex. To category XX, 26% males and 28.5% females were assigned; and to category X, 37.5% males and 30.8% females.

Influence of Age.—Table V shows that 63 of the assessed cases were infants under 12 months, 454 were children aged

TABLE V.—*Age Groups of Assessed Cases*

Age:	Under 1 Year	1–4	5–9	10–15	15+	Total
No. of cases	63	454	244	7	14	782

1–4 years, 244 were 5–9 years, 7 were 10–15 years, and 14 were over 15 years. Table VI suggests that results may be best in the age group 5–9 years, with 34.4% assessed as XX and 36% assessed as X. Results in the 1–4 years group were about average, while those in infants under 12 months were possibly slightly inferior (19% assessed as XX and 35% as X); the number in this group, however, was rather small for comparison. Most observers have concluded that the results of decompression treatment are independent of

TABLE VI.—*Results in Relation to Age*

Assessment	Under 1 Year		1–4		5–9		10–15	15+
	Cases	%	Cases	%	Cases	%	Cases	Cases
XX	12	19	117	25·8	84	34·4	—	2
X	22	35	156	34·1	87	36	2	6
X-	15		85		37		—	2
O and OO ..	14		96		36		5	4
	63		454		244		7	14

age, but there is a suggestion in Table VI that results in babies and adults may not be quite so good as in children aged 1–9 years and especially in those aged 5–9 years.

Second Decompression.—Although the figures are small, Table VII suggests that a second treatment did not often yield good results when the first treatment failed, except,

TABLE VII.—*Results After a Second Decompression Treatment*

Assessment:	XX	X	X-	O and OO	Total
All cases	5	6	8	5	24
First decompression too early	2	2	1	1	6
Net No. of second decompression cases	3	4	7	4	18

perhaps, when the first treatment was given too early (before two and a half weeks of the disease). When the latter subgroup was excluded, a second decompression yielded results only about half as good as the average for all cases.

Results of Other Observers

Treatment of whooping-cough by high flying began in Strasbourg in 1927, when air pilots took children in the paroxysmal stage up to a height of 10,000 feet (3,050 metres). From 1937 to 1939 small-scale trials were carried out in Strasbourg, Switzerland, Germany, Holland, Poland, Spain, Uruguay, Chile, and a very few in England. Not all were favourable. In 1943 open aeroplanes were used in Strasbourg and Switzerland, a dangerous practice which was soon abandoned. Matter (1946) reported on high-flying treatment in 100 patients between the ages of 2 months and 40 years. He concluded that cases over three weeks from onset of the disease profited most, that vomiting stopped in one to two days, appetite returned, sleep improved, and convalescence was shortened.

Baldy and Richou (1946), employing the decompression chamber in Paris, treated 275 children and 21 adults, of whom, however, only 128 were followed up for 21 days. Of the latter group, 22% were reported as practically cured in less than five days, 51% frankly improved, and 4% had paroxysms and vomiting temporarily aggravated. They concluded that the third to fourth week of the disease was the best time for treatment and that repetition of the treatment did not materially increase successes. Contraindications to the treatment were fever, respiratory and cardiac complications, epistaxis and other haemorrhage, acute nasopharyngeal or ear infections, hernia, surgical emphysema, and malnutrition (conditions which I have grouped together generally as the "acutely ill patient").

Lauener and Maeder (1942), in Berne, treated 256 cases by flights to a height of 12,000 ft. (3,660 metres), each lasting one and a half hours. They reported "abrupt cure" after one flight in 57 (22.8%) and slower cure over about eight days in 80 (32%). They also took 24 cases up the Jungfrau to an altitude of 10,000 ft. (3,050 metres) and kept them there three hours with results that were disappointing. There may have been a counteracting effect here of cold and other factors. A trial of low-pressure chamber treatment, however, in 65 cases taken to the equivalent of 14,000 ft. (4,270 metres) yielded "rapid cure" in 31%, "undoubted

improvement" in 50%, no improvement in 16%, and 3% were made worse. Clantour (1946), in Paris, treated 127 cases by high flying with somewhat similar results. Bergquist (1948) treated 45 children in Stockholm—20 by high flying for 45 minutes and 25 in the low-pressure chamber for 45 minutes. On the basis of this very small experience and the very short period of low-pressure treatment he condemned both methods.

Harpoth (1949), in Denmark, compared 101 cases treated by high flying with 59 cases treated by decompression to the equivalent of 3,500 metres (11,500 ft.) for 90 minutes. Other smaller groups were put in the decompression chamber without adequate decompression. The difference in results obtained in the various subgroups of decompression cases was said to be negligible and on this basis he concluded that decompression *per se* had no effect. High flying, however, was thought to be effective. Lalli (1949), of the Italian Air Force, treated 476 cases with three to six flights of 20 to 30 minutes' duration every three or four days for about 15 days. This is quite a different technique from that of most other observers and the very favourable results reported are difficult to assess considering the length of time that must have elapsed from the start of treatment to the date of assessment of the results.

Discussion

The results which I report here conform reasonably well with those of Matter (1946), Baldy and Richou (1946), and Lauener and Maeder (1942), but the number of cases and the duration of the experiment have considerably exceeded those of any other observer. The method of selection of the cases, the chest radiography, the careful recording of paroxysms and vomits just before and a week after treatment, and the conservative assessment of results by two independent observers may be considered favourable points in this investigation. Nevertheless the results reported are largely derived from subjective assessment. The subjective element in the assessment of results of whooping-cough cannot be wholly avoided but it should be limited, if possible, by the use of controls. I have failed, however, to find a way of conducting a controlled investigation and I see no present prospect of achieving this aim.

It would be quite possible to make controls of each alternate batch of patients by running the motor without producing decompression of any significant amount. The patients might thus be deceived into thinking that they had had the treatment. But such deception would be unlikely to remain long undiscovered. The entire absence of ear symptoms in whole batches of patients would almost certainly arouse suspicion. The net effect would probably be to spoil the existing good relationship with patients and doctors and to stop the flow of patients to the clinic. It might also be possible to conduct a controlled experiment in the same way but with the knowledge and consent of doctors and patients. However, the local practitioners when consulted did not favour this suggestion. All hope of a controlled experiment with the present set-up had therefore to be reluctantly abandoned; and this applied also to in-patients, relatively few of whom are suitable for decompression.

The mechanism of action of the treatment has been the subject of much speculation, but is still unexplained. The low pressure of the air breathed seems to be the essential factor, since results seem to be practically similar whether high flying or the decompression chamber is used. The deeper breathing induced may help to clear mucus from the bronchi and perhaps to aerate small collapsed areas in some yet undetermined way. It is conceivable that molecular release of blood gases may be favoured, both because of the lowered pressure of the alveolar air and because of the trend to alkalosis produced by the increased pulmonary ventilation. Blood CO_2 might thus diffuse more freely through alveolar walls and help to expand collapsed alveoli and to loosen exudate in the bronchioles; this in turn could render cough more productive. A study of the composition of the alveolar air combined with estimations of the blood gases, alkali reserve, blood *p*H, blood pressure, and urinary chlorides of patients while in the chamber might throw some light on the mechanism involved. But these matters are still undetermined largely because of the practical difficulties of obtaining the data in out-patients who are nearly all young children.

Leucocyte counts shed no light on the problem. A transfer of oxidase from neutrophils to red cells was observed by Seabra (1947) in men accustomed to flying at high altitudes. Rats which were decompressed for six days exhibited this transfer and resisted infection better than non-decompressed controls. These facts, however, seem to have little bearing on the effect of a *single* decompression.

Credit for the apparent good results has been attributed to psychological factors. Many parents certainly come with high expectations and there is a certain amount of emotion aroused in the patients by the novelty of the treatment. But after the start any excitement present soon evaporates. The children tend to become bored and the younger ones usually drop off to sleep. The mothers were warned against extravagant expectations and told categorically that the treatment had a good effect in some cases but in others had no effect at all. This warning was indeed reflected in the statement of their impressions of the result, some asserting roundly that they could see no difference after the treatment. Psychological factors in this series can, I think, be discounted.

Which cases are likely to be successful and which to be failures? It is clear that the treatment is nearly always useless at a stage of the disease earlier than two and a half weeks, that after the sixth week the percentage of apparent successes is apt to drop, and that the "acutely ill" patient is almost certain to be made worse by decompression. But when the cases are properly selected, I can answer this question no better now than I could five and a half years ago. I look upon decompression as a physical treatment which may exert a favourable influence in some unknown way on the course of the disease in a proportion of carefully selected cases. Such a favourable influence may be partially or completely counteracted by other unfavourable influences, such as "catching a cold" or poor environmental domestic circumstances. Whooping-cough not infrequently pursues an erratic course, exacerbation occurring after periods of improvement. In these circumstances the relative uniformity of the results of decompression treatment reported in the more important papers published on the subject is rather remarkable and may be thought to constitute a prima facie case in its favour.

A decompression clinic for whooping-cough has outstanding advantages beyond the mere question of decompression treatment. When conducted by an experienced physician it acts as a valuable centre of advice for practitioners in their difficult cases, especially those in which pulmonary collapse is found. The running costs are not high when the staff of the hospital is used, but ambulance transport may be a costly item. This has usually to be provided as a routine on grounds of the infectivity of the patient, at least in the first five weeks of the disease.

Summary

A decompression clinic for the treatment of whooping-cough by means of low air-pressures is described and incidental advantages of such a clinic are suggested.

Of 782 carefully selected and assessed cases, 28.2% were reported to show marked rapid improvement in some four to seven days following decompression, and 34.1% to show more gradual but probably significant improvement. The remainder showed no more than the expected change at that stage of the disease, or no improvement at all.

Of the children who were vomiting food more than once daily 57.7% stopped vomiting within a few days after the treatment, and in another 20% vomiting was relieved.

Decompression treatment is usually unsuccessful at a stage of the disease earlier than two and a half weeks and is harmful to the acutely ill case with pyrexia, cyanosis, or appreciable atelectasis.

The results reported are based on careful selection of cases and combined assessment by parents and doctors. An adequate controlled experiment has not yet been done but should be attempted when opportunity offers.

The mechanism of the action of decompression in whooping-cough has not been elucidated. Further trials should preferably include biochemical studies.

I thank my colleague Dr. L. J. M. Laurent for his valuable co-operation throughout, for reporting on a visit to Dr. Richou and others in Paris in 1948, for his part in the conduct of the clinic, and particularly in the assessment of the results.

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CEREBRAL CYSTICERCOSIS

COMMON BUT UNFAMILIAR MANIFESTATIONS

BY

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Though cerebral infestation with the larval stage of the *Taenia solium* has been recognized since the middle of the last century, it was after the extensive work of MacArthur (1934), Dixon and Smithers (1934), Brailsford (1941), and Dixon and Hargreaves (1944) that cysticercosis was given an important place among the conditions causing epilepsy. So well known is this that the diagnosis is unlikely to escape consideration in a patient suffering convulsions who has lived or served in India or the Far East.

It is the purpose of this paper to emphasize the clinical manifestations of this disease, other than epileptic convulsions, which, though both important and common, have received scant attention in this country. At the same time it will be seen that India and the Far East are not the only, nor even the main, areas where the condition may easily be acquired. Brief illustrative case histories are given, grouped under appropriate subheadings, but, as will be evident, the same patient may show several different features.

Periods of Disordered Behaviour

This group includes a wide variety of abnormal manifestations, unassociated with any true convulsion, but occurring during periods of disturbed consciousness, accompanied sometimes by involuntary micturition, and often consisting of bizarre or violent behaviour.

Case 1.—A Polish male aged 41 was examined on May 28, 1954 Since 1945 he had been subject to frequent attacks of violent behaviour, lasting three to five minutes, accompanied occasionally by involuntary micturition, stopping suddenly, and followed by several hours' deep sleep. The day before examination he had, without warning or provocation, attacked a friend with a chair, resisted the restraint of five men, and then suddenly passed into a deep sleep, having no memory of the incident on waking. Physical examination was negative, but a white blood count showed an eosinophilia of 800 to 950 per c.mm. Skull *x*-ray films were normal, but *x*-ray films of the thigh muscles showed typical calcified cysticerci. The attacks were greatly improved by the use of primidone.

Case 2.—This patient, a Polish boy aged 11, was born in Austria and had lived five years in the Ukraine. Since early 1954 he had been subject to attacks, usually during breakfast, in which he would make grimacing movements of the face for one minute, then sit quite still staring into space for two or three minutes, then repeat several numbers, and suddenly return to normal, though sometimes a little drowsy afterwards and with slight headache. Physical examination on September 17, 1954, was negative, but a white blood count showed a constant eosinophilia of about 1,000 per c.mm. Stools were normal. *X*-ray films of the thighs showed calcified cysticerci.

These probably represent attacks of psychomotor epilepsy, and it is remarkable how infrequently the standard leads of the electroencephalogram are of help in cysticercosis. It is possible that the lesions are situated in areas of the temporal lobes which would require more elaborate techniques to demonstrate.

Transient Loss of Function

The sudden loss of use of, or of sensation in, a limb, or the sudden loss of speech, with subsequent rapid recovery, is not uncommon in the early stages of a cerebral neoplasm and in cerebrovascular disease. Episodes of this type are often seen in cerebral cysticercosis, and have on occasion, in apparently healthy young soldiers, been regarded as hysterical.

Case 3.—A British man aged 20 was admitted to the Queen Elizabeth Hospital, Birmingham, on November 10, 1953, complaining of three episodes, in the previous five years, of sudden loss of use of the left hand, with numbness of the hand, rapidly recovering. One attack lasted several hours. He had in addition, and at separate times, had several episodes of unexplained loss of consciousness. He lived the first ten years of his life in India. Physical examination was negative and a full blood count normal. The cerebrospinal fluid contained two mononuclear and one polymorphonuclear cells per c.mm., with 132 mg. of protein per 100 ml., and a paretic Lange curve. The electroencephalogram showed only very occasional 5–6 c/sec. waves occurring synchronously in all leads. *X*-ray examination of the skull showed a number of small foci of intracerebral calcification, and *x*-ray films of the thigh muscles showed numerous calcified cysticerci.

Case 4.—A British ex-Regular-Army soldier aged 32 who had spent two periods of service in India and China was admitted to the Queen Elizabeth Hospital, Birmingham, on October 23, 1941, complaining of periods of sudden onset of loss of speech during the previous six years, usually lasting several hours, but on one occasion lasting three days. The most recent attack was accompanied by paralysis of the right arm and leg for several hours, recovery being very rapid. In addition, and at separate times, he had had periods of unexplained loss of consciousness, during one of which he had passed urine, and during another had fought off those who had come to his assistance. Physical examination was negative apart from two small subcutaneous nodules in the left arm and the left thigh. A full blood count and *x*-ray examination of the skull were normal, but *x*-ray films of the thigh muscles showed numerous calcified cysticerci. Biopsy showed the subcutaneous nodule from the arm to be a lipoma, but that from the thigh proved to be a cysticercus.

Acute Intermittent Obstructive Hydrocephalus

This, though one of the longest-known non-epileptic manifestations of intracranial cysticercosis, is one of the least well recognized in England. Bruns's symptom-complex (Bruns, 1906) consisted of the sudden onset of violent headache, vomiting, tinnitus, and vertigo, passing on in the more severe attacks to deep coma and even death, and often precipitated by sudden movements of the head. It was considered to be diagnostic of a solitary cysticercus in the fourth ventricle.

TABLE I—*Responses of 74 trainees to questions about training, experience, and confidence in minor surgical procedures*

Minor surgical procedures	Training was adequate	Gained experience	Feel confident
Injections:			
Joint	42	43	37
Varicose veins	7	6	5
Haemorrhoids	3	2	2
Aspirations:			
Joints and bursae	41	49	41
Ganglia	13	13	11
Removal of toenails	42	42	36
Incisions:			
Abscesses	59	59	61
Thrombosed piles	15	13	14
Cautery and cryocautery	31	34	32
Ligation of varicose veins	7	4	2

widely—for example, 80% thought that they had received adequate training and were confident in draining abscesses whereas only 3% had received training and were experienced and confident in injecting haemorrhoids. No trainees were confident in all the procedures listed, even those who had been a senior house officer in surgery.

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With support services in NHS trusts decreasing, preregistration house officers are going to find themselves carrying out more non-clinical tasks. As a result education standards will decrease, there will be less time to sleep while on call, and the length of a normal working day will increase. With consultants holding clinical budgets some junior doctors will find it difficult to ask for payment for the extra hours they will have to put in. It is essential that the BMA acts on behalf of its junior members and opposes these cuts.

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Altitude treatment for whooping cough

SIR,—Minerva recalls hearing about children with whooping cough being taken for short flights in light aircraft in an attempt to relieve the cough, and she asks when this belief in altitude treatment ceased and why.[1]

As a doctor who holds a commercial pilot's licence and spends some of his free time working for an air taxi service that flies sightseers around the Swiss Alps, I can assure Minerva that the belief in altitude treatment is by no means dead. In the past two years I have taken three children with persistent whooping cough on flights at the request of parents who had been told by their family doctors that this procedure was often recommended in the 1930s and might be worth a try.

When I was first approached by the dispatcher to fly one of these children ("Here, you're a doctor; this sounds like a job for you") I thought it highly unlikely that any therapeutic effect would be achieved. My scepticism was reinforced by a computer search of published reports just before the first flight. The few papers I found were in obscure journals and amounted to little more than collections of anecdotes and regurgitations of long held convictions dressed up in authentic sounding medical jargon. Hard data were lacking. Partly out of medical curiosity, however, and partly because the parents were obviously desperate to try anything, I went ahead with the flights. Before doing so I made it clear that neither I nor the company could guarantee therapeutic success.

As I had only three patients and was unable to think of a suitable placebo for a second treatment arm (take them up for an hour in a flight simulator?) I was never able to establish with any scientific certainty whether the "treatment" was effective. From the moment of take off all three children were glued, bug eyed, to the windows of the aeroplane as the alpine scenery sped by. They were clearly fascinated by the sensations of flight, and they stopped coughing. Shortly after we landed they started again. They tolerated the flights well, and there were no adverse events.

Whether flights for whooping cough are clinically effective or not, I highly recommend them. There can hardly be a treatment that gives more pleasure to patient and therapist.

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PMID 1859970

SIR,—I was intrigued by Dr P A Casey's letter about the effect of altitude on non-productive coughing after pertussis in children.[1] My experience (after 19 years of uniformed service) is that this phenomenon is widely known. I discussed the situation with my senior colleagues and can report that we in the Royal Air Force medical branch have been using this particular mode of treatment for many years—over 40 to my knowledge.

Our standard approach is to decompress victims to 3000-3350 m above sea level, after which disappearance of the cough is the norm. The pathophysiology of this remains enigmatic. What is without doubt is that the treatment works. Our only difficulty has been to obtain suitable insurance cover for the decompression run, given that the "victim" has almost invariably been a civilian. Fortunately, I am not aware of any complications occasioned thereby.

D HALL

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1 Casey PA. Altitude treatment for whooping cough. *BMJ* 1991; 302:1212. (18 May.)

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TABLE I—*Responses of 74 trainees to questions about training, experience, and confidence in minor surgical procedures*

Minor surgical procedures	Training was adequate	Gained experience	Feel confident
Injections:			
Joint	42	43	37
Varicose veins	7	6	5
Haemorrhoids	3	2	2
Aspirations:			
Joints and bursae	41	49	41
Ganglia	13	13	11
Removal of toenails	42	42	36
Incisions:			
Abscesses	59	59	61
Thrombosed piles	15	13	14
Cautery and cryocautery	31	34	32
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Sisters seek high flying cure

0 Comments | Timaru Herald, Sep 17, 2004

Sisters Sonnie and Jahaana Katene will go to great heights in a bid to cure their cases of whooping cough and get a good night's sleep

The Temuka girls will take a 30-minute flight at 9000ft (almost 3000 metres) today to see if it cures their condition.

It is believed a reduction in oxygen at high altitude kills the whooping cough bacillus.

The sisters have been offered the free trip courtesy of a reader, who learned of 21-month-old Taylor Fettes' success with the treatment in the Herald.

Flying high last week has all but cured the Timaru boy's whooping cough.

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Sonnie, age 6, and Johaana, age 11, have been suffering from whooping cough for about two months. Their wee sister, 14-month-old Aaneiya, also has whooping cough but she's on the improve.

The girls contracted whooping cough despite being immunised against it.

Their mum, Kelly, said they had been to the doctor at least once a week for the past few weeks.

Mrs Katene said the girls' coughs got worse at night and the family got little sleep.

"It feels like they have had it forever."

Sonnie and Johaana are on antibiotics this week to stop the infection. After that, the cough has to take its course.

Whooping cough is often referred to as the "90 day cough".

Meanwhile, despite the growing number of people who swear high altitude flying cures whooping cough, doctors are reluctant to prescribe it as a cure.

South Canterbury GP spokesperson Dr Ian Smith yesterday advocated prevention through immunisation.

He was backed by Auckland Hospital paediatrician and whooping cough expert Dr Cameron Grant.

Dr Grant said in some cases the flight could be dangerous.

"It is unlikely to be helpful and could be potentially dangerous for a young baby. With whooping cough can have a period where it's hard to breath and a lack of oxygen can cause convulsions."

Dr Grant would not advocate high altitude flying and had not heard of any studies that proved its success.

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