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(DEVOTED TO ECONOMIC AND SOCIAL PROBLEMS)

# WEALTH & WELFARE

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**HEALTH.****VARIOLA AND VACCINATION.**

[By J. P. LEAKE, SURGEON, UNITED STATES PUBLIC HEALTH SERVICE.]

The following questions are not infrequently asked by physicians in regard to variola and its prevention. Part of the answers given are supported by good evidence, part by conclusive evidence, but much, unfortunately, is only opinion a personal weighing of such evidence as is at hand; yet each of the questions should have a tentative answer, according to the best light available. Further information may change the answers given here. Though for nearly every statement that can be made concerning smallpox some support can be found in the literature, a few of the observations here recorded are original. It is hoped that many of the gaps in our knowledge of smallpox and vaccination may soon be filled. Of all infectious diseases prevalent in the United States this disease is the most completely preventable by public health measures.

1. What is the best method of vaccination?

Probably the "multiple pressure or prick" method. This consists of a shallow, tangential pricking of the cleansed, but not irritated, skin with a needle, through a drop of smallpox vaccine, covering an area not greater than one-eighth of an inch (3 millimeters) in diameter. This gives little chance of accidental infection and the

Only 6 pricks or punctures were formerly advocated; comparative tests showed this to be inferior to the scratch method in percentage of "takes." By the use of 30 pricks this difficulty has been overcome, and the percentage of "takes" is as high as with any other safe method. For primary vaccinations, where the mildest possible "take" is desired, and where other attempts with highly potent vaccine will be made promptly if the first is unsuccessful, the number of "pricks" may be reduced to 10, or even to a single prick.

The disadvantages of this method, which it shares with some other methods, are, first, that without demonstration and practice the technique of applying the proper pressure may not easily be acquired, and second, that without due care an area larger than one eighth of an inch (3 millimeters) in diameter may be covered by the insertion. In regard to the first point, the difficulty is usually that the needle is not pressed in the right direction or that the pressure is not firm enough. Provided the needle is held quite tangential to the curve of the arm, and the direction of motion is quite perpendicular to the needle, it is difficult to make the rapid pressures too firmly. In regard to the second point, motion from the wrist with the arm held rigid is usually more accurate than whole-arm motion.

The advantage of this method are its mildness and painlessness, the fact that it

is not followed by a severe reaction, and that the evidence of trauma due to the operation has disappeared before the first observation for an early reaction is made, and the fact that the vaccine is wiped off immediately, so that the uselessness of a dressing is obvious to the person vaccinated.

2. What is the best vaccination dressing?

None at all. The ideal to be sought is to keep the site cool and dry, so as to promote rapid formation of a firm crust and to avoid maceration and rupture of the vesicle. Heavy or tight clothing, perspiration, and even repeated washing with alcohol interfere with rapid desiccation. If necessary to prevent soiling of the clothing, a fold of sterile gauze may be attached to the garment, not to the skin. Occasionally a severe take may require a few days of antiseptic dressings; primary vaccinations should be inspected about the fourteenth day to insure that desiccation is proceeding properly. There is no objection to a light sterile dressing for the first few days after vaccination, provided the arm is under constant competent surgical attention and maceration is prevented, but such provision is seldom assured.

3. Are there any objections to vaccination on the leg?

Yes. Leg vaccinations are exposed to more moisture, and to more contamination from street dust, than vaccinations at the region of the deltoid insertion. On account of blood stasis, primary leg vaccinations in adults are often accompanied by a purplish

discoloration, and result in a large, slowly healing ulceration; they usually cause temporary disability. Vaccination on the arm when performed by the multiple-pressure method described above causes no disfigurement; the resulting vaccination scar is definite and typically pitted for inspection purposes, but hardly noticeable otherwise except as a "sanitary dimple."

4. Is early surgical treatment of the vaccination vesicle satisfactory, such as opening and applying antiseptics?

Yes; provided constant, competent care is exercised thereafter until healing is complete. However, the maximum immunity is not obtained until the red areola has reached its greatest diameter and begun to fade.

5. Are any other methods of vaccination and treatment satisfactory?

Any method is satisfactory which insures that the vaccine is deposited in the deeper layers of the epidermis with no more injury and over no greater an area than by the pressure method (not longer than one-eighth inch or 3 millimeters in any direction), and which avoids poulticing the developing vaccination. With any scarification method, to secure the maximum number of "takes" possible with the virus used, the vaccine should be rubbed in with the side of the scarifier or with a sterile toothpick for at least 15 seconds. Dr. Chas. Armstrong rightly suggested that even after open scarification the vaccine be rubbed in with the side of the scarifier.

6. Are there any objections to the intracutaneous injection of diluted vaccine virus?

Yes. It is likely to be more painful than the method described above, and in many instances, even in good hands, the injection will be subcutaneous rather than intracutaneous; subcutaneous applications of smallpox vaccine give reactions which are different from ordinary vaccinia and are not to be differentiated from reactions following other injections, so that one is never sure of the potency of the vaccine being used.

7. How may the various reactions following smallpox vaccination be differentiated?

By observation 2 days after vaccination and twice later, about 4 and 8 days after vaccination, and by the cooperation of the person vaccinated to observe when the maximum reaction is reached. With a reaction of immunity, which indicates full protection against small-pox, the broadest redness is reached and passed in 8 to 72 hours after vaccination. This redness is accompanied by a slight elevation of the skin, which can be felt by passing the finger lightly over the vaccinated area. With the accelerated or modified vaccination or vaccinoid, which indicates partial immunity, the broadest redness is reached and passed in 3 to 7 days after vaccination. With typical primary vaccination, indicating absence of

immunity to smallpox prior to this vaccination, the zone of redness, rather narrow from the third to the seventh day, begins a sudden spread about 7 days after vaccination and reaches its broadest diameter in 8 to 14 days after vaccination, rapidly disintegrating and disappearing thereafter. These three types merge into each other, all gradations being found in practice; differentiation into the three types is based on the time of broadest redness. The prompter the maximum the higher is the immunity. Vesicles are formed in vaccinia and typical vaccinia reactions, but not with the reaction of immunity. The vesicle of a typical vaccinia, and of many vaccinoid reactions, has a turbid, whitish appearance, but if properly cared for does not become a true pustule, and dries up and heals promptly after the height of the reaction is reached. The characteristic pitted scar is red at first and gradually becomes white. Scars of vaccinoids are much less marked, and reactions of immunity usually leave no scar. All three of the types are successful vaccinations provided the smallpox vaccine was fresh and strong. All three not only indicate the grade of the previous immunity, but increase the immunity as well. All other results, where proper technique was used, indicate deficient vaccine. Every vaccination should give a reaction.

8. What untoward results from vaccination are to be looked for?

With aseptic technique and a small insertion site which is kept dry and cool, the great majority of vaccinations go through their typical course and heal promptly if the crust is left undisturbed. The freest possible access of air currents and the natural friction of the clothing seem to promote firmness and rapid crust formation in the superficial skin layer of the vesicle. Particular care that all precautions are taken should be exercised in primary vaccinations, as Surg. Chas. Armstrong has pointed out.

Rarely, due possibly to skin bacteria which can not be removed by the preliminary cleansing the vesicle will become purulent and extend beyond its normal diameter, which is not over three-eighths of an inch (10 millimeters) greater than that of the insertion site, the drying up of the vesicle and the fading of the areola being thereby delayed. Opening of the pustule and the temporary application of some strong antiseptic, such as mercury bichloride solution, should be practiced if this takes place. As soon as a fair-sized areola has formed, the maximum immunity against smallpox has been attained, and the use of an antiseptic will not diminish the vaccinal protection. In general, temporary moist dressings are to be preferred to powders or ointments. Occasionally the vesicle may soften or accidentally rupture, or the crust be knocked off, in which case also temporary dressings may be indicated, but the formation of a firm, unprotected crust should be favored as soon thereafter as possible. For some infants a roomy sleeve fastened to the neck and wrist may be useful to keep out the finger nails.

Accessory vesicles around the vaccination site may in some cases be caused by

too vigorous cleansing of the skin prior to vaccination. The virus may also be transferred to scratches or other skin lesions, giving rise to distant vesicles.

True generalized vaccinia practically never occurs. Eruptions at about the time of the maximum reaction or later are not at all infrequent. The earlier eruptions are likely to be morbilliform, some simulating the skin lesions of measles very closely. The later eruptions are more like erythema multiforme. These incidental eruptions are not troublesome after their diagnosis is understood, and they disappear promptly without treatment.

The four most common failures in vaccination, from virus of insufficient potency, are a total lack of any reaction, a sluggish, imperfect reaction not conforming to any of the three types described in the answer to question 7, an early reaction similar to a reaction of immunity in those who should give a vaccinoid, and the spurious reaction variously known as the keloidal, the mulberry of Seheult, or the paravaccine of Pirquet. This last is a reddish or purplish papule looking somewhat like granulation tissue, rather slow in appearance and often persistent; it gradually disappears without treatment.

To guard against complications use aseptic technique, insertion sites not more than one-eighth of an inch (3 millimeters) in diameter, keep the arm dry and cool, and (in first vaccinations) inspect after 9 to 14 days.

To guard against failures use fresh vaccine that has been kept very cold and in case of doubt as to potency, vaccinate at more than one site, keeping each site of the minimum size.

9. How can one tell whether the vaccine used is of full potency?

A fair test that the vaccine is of full potency is that when properly applied it gives 100 percent of vaccinias (typical "takes") in every application on at least 100 previously unvaccinated individuals. A more practical test is that it should give more than 50 per cent of vaccinoid reactions in persons who have been vaccinated or have had smallpox over 10 years previously, and immunity reactions typical of vaccinias in the remainder; a much smaller number of individual vaccinations will give a good idea of the potency of a batch of vaccine by this test.

10. How cold should smallpox vaccine be kept?

The colder the better; well below freezing if possible. Ice-box refrigeration is not cold enough for this purpose. Smallpox vaccine can not be injured by freezing, as can serums and other vaccines. Even a whole day out of cold storage, in addition to the necessary transportation from the manufacturing laboratory, any produce detectable deterioration in potency. Smallpox vaccine which has been out of cold storage so that it gives only about 80 per cent or 90 per cent of successful vaccinations on previously unvaccinated individuals may be satisfactory in ordinary outbreaks of smallpox or in routine vaccinations, but in the presence of severe smallpox or when reactions of immunity are to be observed the vaccine should be

obtained direct from the manufacturer and kept below freezing. In an electric refrigerator the smallpox vaccine should be kept in an ice-making compartment. Next best to storage below freezing is placing the vaccine in a metal or glass container which presses against a block of ice. If a vacuum bottle is used for transporting smallpox vaccine the inside of the bottle should be packed with ice around the vaccine. Fortunately, severe outbreaks of smallpox tend to occur in cool weather, and cause sufficient demand for the vaccine so that it is shipped very directly from the manufacturing laboratories and is used rapidly. In the presence of severe smallpox, when there is uncertainty as to the potency of the vaccine, vaccination should be performed at more than one site, at least an inch apart, preferably with vaccine from different sources. Batches differ in the keeping qualities, but in recent years smallpox vaccine has with uniformity been found to be satisfactory as it leaves the manufacturer.

11. Does a red, slightly raised area, observed at the site of vaccination 48 hours after vaccination is performed, necessarily indicate that the person vaccinated was immune to smallpox?

No; there are three other possibilities:

(a) The most frequent of these is that the vaccine used had been weakened by time or temperature, so that, while still able to give the reaction described above, it did not go on the production of a more marked reaction (vaccinoid). The vaccine of full strength if used on the same person. Ordinary ice-box refrigeration is not cold enough for the storage of smallpox vaccine which is to be used in testing immunity.

(b) Accelerated reactions (vaccinoids) usually give at early inspection (second day) the appearance described above, which is similar to that of a reacting of immunity. Thus, even if an early reaction is observed, subsequent observation, as on the fifth or seventh day, is necessary to determine whether the reaction was that of immunity, with its maximum diameter of redness reached in less than 3 days, or an accelerated reaction (vaccinoid) with later maximum. Even a vaccinoid reaction, however, indicates some immunity. Some true vaccinias may show an early reaction, especially if there have been previous unsuccessful attempts at vaccination. Early reactions are more clearly apparent with the multiple pressure method than with other noninjection methods on account of the absence of injury to the true skin and the consequent absence of an obscuring traumatic reaction. Temperature changes, skin irritation, and other conditions may cause fluctuations in the diameter of the reaction, and there may even be an almost entire subsidence, giving rise to two maxima. In this case the later maximum indicates the true character of the reaction. The only safe rule for determining which of the three types of reaction occurred is repeated observation, as explained in the answer to question 7.

(c) The trauma due to the mere mechanical act of vaccination may cause

enough irritation so that the redness persists at the time of the early 48 hour observation, independently of any specific reaction. To obviate falsely reading such redness as a reaction of immunity it is necessary either to treat another site as a control, with exactly the same degree of trauma but without applying the vaccine, or, preferably, to use a method such as the "multiple pressure," which leaves no traumatic reaction after 6 hours to obscure faint reactions of immunity.

An early reaction can be called as a true reaction of immunity only when pure smallpox vaccine has been used and these three other possibilities have been eliminated.

12. In the reaction of immunity is the grade of immunity indicated by the amount of the reaction?

No. The time after vaccination within which the local area of redness and infiltration of the skin reaches its maximum and begins to subside, and not the amount of this redness and infiltration, is the index of immunity. The quicker the maximum is reached and passed the higher is the degree of immunity indicated. The amount of the reaction depends on the skin reactivity of the person vaccinated and not on the grade of immunity. It is probable that any reaction which is marked within 24 hours will reach its maximum in less than 72 hours, and therefore would constitute an immune reaction, but some of the most highly immune persons give the smallest reactions.

13. How often should one be vaccinated against smallpox?

The protein reactions as shown by the usual skin tests (not subcutaneous) have an altogether different time relation from that of the reaction of immunity to smallpox. The former are rapid, appearing and reaching their maximum within about one-half hour, while the reaction of immunity to smallpox reaches its maximum in not less than 8 hours after vaccination, and usually in more than 24 hours after vaccination. The protein reaction has faded before the reaction of immunity has begun to appear.

14. How often should one be vaccinated against smallpox?

Ordinarily once in every 5 to 10 years, so that a maximum protection is maintained without the inconvenience at any time of a reaction more severe than the immunity reaction, except for the original primary vaccinia. Vaccination of infants is attended with less general reaction and fewer complications than vaccination of older children, so that vaccination is advisable as soon after birth as practicable, preferably before teething. Unless tight underclothing is worn over the arm, winter and spring are more suitable seasons than the warmer parts of the year. Though young babies often require a more potent vaccine than others to insure a successful "take," there are four advantages to be gained by vaccinating a child during infancy rather than waiting until later; first, the "take" is apt to be milder and freer from the dangers of complications, such as tetanus;

infantile vaccination usually gives rise to no inconvenience whatever; second, it tends to make the secondary vaccination, required at school age, a much milder affair than if the school vaccination were primary; third, protection against smallpox is gained for the preschool runabout years; fourth, the scar of an infantile vaccination fades more completely than scars of primary vaccination performed later. Provided the subsequent revaccinations result in vaccinoids or immune reactions, as may be expected, one thereby secures lifelong complete protection against smallpox without any severe reaction at any time and with only an inconspicuous scar.

Immunity afforded by vaccination is lost by different individuals at different rates. The ability to ward off an attack of smallpox may be compared to proficiency in a foreign language. Such proficiency may be first acquired during early life and lost gradually, more rapidly in some individuals than in others. Some individuals need to be vaccinated more often than once in 5 years to maintain full protection and always to secure as the result of such vaccination merely an immunity reaction. Others may be vaccinated less frequently than once in 20 years and still maintain high immunity. It is a good plan to be revaccinated whenever one can be assured of a fully potent virus being used, so that the resulting reaction can be interpreted with certainty as showing a definite grade of immunity. On the basis of such a reaction, the individual should be advised as to how frequently in the future he should be revaccinated.

The chance of taking the disease varies with the intensity of exposure and with the severity of the strain of smallpox to which one is exposed, as well as with the individual susceptibility. Those health officers who are continually exposed may need more frequent vaccination than the public at large. There is some evidence to show that infants and members of the colored races tend to lose their immunity more rapidly than others. A primary vaccination with one successful revaccination, or even a single successful vaccination, will as a rule protect throughout life from the milder forms of smallpox, but this is far from being true in the severer outbreaks. Second attacks of smallpox are rare, but do occur. If there is danger of exposure to a severe form of smallpox all persons who have not been vaccinated within one year successfully, that is, with vaccine known to be of full potency, should be vaccinated.

15. Does the degree or length of immunity following vaccination depend on the size or number of scars?

To some extent, but not enough to make it worth while to undergo the inconvenience, the retardation of healing, and the risk of infection from a vaccination insertion larger than the smallest one which will insure a successful "take." Immunity depends much more on the recency of vaccination, with potent virus, than on the size or number of vaccinations at any one time.

16. What are the contraindications to vaccination?

In general, skin diseases, particularly eczema, are the only conditions which will justify school attendance and at the same time be contraindications to routine vaccination. This is on account of the danger of diffuse vaccinia from carrying the vaccine into the open lesions of the skin disease, or the danger of contaminating the vaccination site of the skin lesions are purulent. Patients with such diseases as tuberculosis are in no wise harmed by properly performed vaccination. Acute infectious diseases may cause a vaccination "take" to be delayed or a typical, but are not in themselves contraindications in case of possible exposure to smallpox. There is a curious relation in leprosy which tends to cause the lighting up of leprosy lesions during the course of the vaccination, but which may promote more rapid healing thereafter. Serious lymphomatous diseases, including lymphatic leukemia, may be made worse by vaccination.

17. Will a nonimmunized person contract smallpox if exposed to the disease?

By no means uniformly. Exposure to smallpox, especially to the milder forms, without contracting the disease frequently occurs and is no definite evidence of immunity. The number of cases of smallpox among the unprotected persons in contact with patients suffering from the disease is very much less than 100 per cent.

18. Does the failure of a vaccination to "take" indicate protection?

No. The individual's reaction to the vaccine is not a reliable index of his immunity. For example, very young infants are not as easily vaccinated as older children, yet they are susceptible to smallpox and when successfully vaccinated, give a typical vaccinia. Some individuals may be resistant, in the same way, to a lot of vaccine which gives "takes" generally in other individuals, but are not immune against smallpox when exposed, nor against vaccination when a fully potent lot of vaccine is used.

19. How long after exposure to smallpox is it worth while to be vaccinated in order to hope that the attack may be warded off?

In some smallpox hospitals every person is vaccinated on admission, to guard against the danger from exposure in case of error in diagnosis. Successful vaccination performed on the day of exposure will almost always give complete protection against the smallpox attack, and vaccination up to a few days before the onset at least makes the attack milder than it would otherwise have been. Vaccination during the few days before onset will allow the vaccination and smallpox eruption to develop simultaneously without either influencing the other.

The successful development of a vaccination performed after the eruption has appeared is commonly held to be incompatible with the diagnosis of smallpox. Vaccination may, however, rarely appear to be successful if performed as late as the fourth day of the eruption, and

it is astonishing how soon after smallpox or vaccination some exceptional individuals lose their immunity to vaccination. Three circumstances may cause confusion in regard to coincident smallpox and vaccinia. A vaccination performed in good time to prevent the smallpox attack may have been done with vaccine some-what under full potency, and development of the typical vaccinia may be abnormally delayed until stirred up by the oncoming smallpox; or the vaccine may have been entirely impotent and the developing eruption of variola may appear first at the irritated vaccination site, simulating true vaccinia. A late vaccination may in the same way result in a localized variolous path at the vaccination site, or the late vaccination may give a modified or immune reaction due to the increasing smallpox immunity.

The discussion given above applies to primary vaccination. If the individual has some immunity from a previous vaccination the secondary vaccination may be protective though performed at a somewhat longer period after exposure.

20. What are the most important points in the diagnosis of smallpox?

The diagnosis of smallpox may in some cases be difficult for the most experienced, but in order of their importance the most important diagnostic points are the distribution of the eruption, the individual lesions, the course of the disease, and inoculation tests. Of these four points the first two are of especial value because they are immediately available at first inspection of the patient. On account of its contagiousness smallpox should be diagnosed as promptly and as certainly as possible. The characteristics of the distribution are the most uniformly valuable of all the criteria of diagnosis, and are useful at almost any case. Even in the mildest cases, with only a very few lesions, a count of the number on each part of the skin surface will usually give the clew to the correct diagnosis. It is to be remembered, however, that smallpox is a general disease, and that the eruption is symmetrical and not local.

The usual distribution of the smallpox eruption, general and in detail, and the character of the individual lesion, are shown by the following (modified from T. F. Ricketts) of differences between the smallpox eruption and the chickenpox eruption.

#### SMALLPOX.

- Favors prominences, extensor surfaces, and surfaces exposed to irritation; tends to avoid protected surfaces flexures, and depressions.
- The forearms and wrists have a thicker eruption than the upper arms.
- Most abundant on face, most scanty on abdomen and chest.
- More abundant on the back than on the abdomen.
- More abundant on the shoulders than across the loins, and on the chest than on the abdomen.
- The eruption favors the limbs and generally the arms next to the face.
- Except when modified naturally or by previous vaccination, the lesions are deep-seated and have an infiltrated base.

(h) The solitary lesions on the more protected parts of the body are generally circular in outline.

(i) The lesions tend to be all of the same sort at the same time, or if they are different, the smaller the lesion and the nearer it lies to the face the more advanced in development it should appear to be. In case of modified smallpox the lesions are likely to vary greatly in size.

#### "MR. COFFEE versus MR. MILK"

One day, Mr. Coffee and Mr. Milk came before Judge Health because they had been quarrelling for some time and were not able to come to a compromise between themselves. The Judge asked each one to tell his side of the affair.

Mr. Coffee began. "Many years ago I was very popular among the young people, and I was often a good stimulant after a hard day at school. Now, my enemy, Mr. Milk, not having as many fine qualities, has taken my place, and I greatly resent this, and I wish that you, most honorable Judge, would settle the question, once and for all, which one of us should be most popular with the young folks."

Then the Judge asked Mr. Milk to tell his side of the affair.

"Most honorable Judge, many years ago, it was true, Mr. Coffee was a favourite among young and old alike. That time has now passed. We all try to get as much out of our position in this work-a-day world as possible. In order to do this we must have a good start the first thing in the morning. This can never be done if we do not have the right sort of foods to start us off on our journey. Nothing is more harmful than a hot cup of coffee taken in a hurry, and a piece of bread stuffed down after it. If we are to live healthfully and happily, we must see to it that we get plenty of eggs, milk, fruit, cereals and vegetables. I have tried to impress this upon Mr. Coffee, and to show him that his point of view is entirely wrong, and that it is not a matter to be dealt with jealously. I now leave it to your wise judgment to settle the matter."

Suddenly, without a moment's hesitation the Judge gave his opinion that Mr. Milk was right and that we should try to get away from the habit of drinking such unhealthy beverages as coffee and tea.—G.H.

#### ROAD TO HEALTH.

By ELIZA M. MOSHER, M.D.,

BROOKLYN, N. Y.

#### CARE OF THE TEETH

On rising at once rinse the mouth and throat with warm water. Fill it with water and hold it while bathing, changing it occasionally; this to prepare it for cleaning the teeth. Brush the teeth, with mouth filled with water, with or without paste or powder. Finish with brush dipped in an antiseptic solution such as Listerine or Alkalol.

#### II. BATHS.

Take a shower bath on rising, or in its place a hot and cold sectional bath. This consists in rubbing the entire body in sections consecutively: (1) face and neck; (2) arms; (3) trunk; (4) legs; first with very hot wet cloth and then lightly with one wrung out of cold water. Dry each

section with a rough towel and rub vigorously with a dry bath brush.

Twice weekly a warm tub bath in addition may be taken in the following manner.

Lie quietly in clean warm water to soak the skin; then kneeling or sitting on a seat across the tub, scrub with soap and rinse. (Girls and women should not, for obvious reasons, lie or sit in dirty soapy water.) After wiping with a towel, rub with a dry bath brush.

#### III. WATER DRINKING.

Since more than 60 per cent. of the human body is water which is constantly being lost, it is important that enough water shall be taken to replace loss. From five to seven glasses daily seem to be the amount required by most adults. The best time for drinking are an hour before meals, in the middle of the afternoon and at bed time.

To dilute fatigue products, and wash them out of the body by way of the lungs, skin and kidneys, prevents them from becoming fastened in the body tissues and thus lowering its vitality.

#### IV. EXERCISE.

It is wise to begin each day—before rising—with a few exercises to start the body machinery after the night of inactivity. Take three deep breaths and exhale slowly and completely. These breaths are so like long restful yawns, the author has named them "yawn breaths." Elevate the fixed legs three times during these expirations. Follow with elevation of head and shoulders.

These exercises should be taken in retiring, as in emptying the chest in expiration the diaphragm rises to its highest point, carrying with it stomach and intestines, which gravitate downward more or less while the body is in the upright position. Stretching the entire body to its full length several times also aids in keeping it in good condition. After rising other exercises can be taken, always, however, avoiding forward bending to touch the floor with the hands, as this exercise crowds the contents of the abdomen forward and tends also to displace the kidneys.

Every one should walk daily as much as time and strength will permit.

#### V. SLEEP.

From seven to eight hours of undisturbed sleep should be assured. If sleep has been lost it should be conscientiously made up as soon as possible.

#### VI. FOOD.

The human body is a methodic mechanism; irregularity in eating disturbs the normal routine of its activity. Food should be adequate and well prepared, and there should be sufficient variety. Meals should be eaten slowly and in quietness of mind.

#### VII.

The habit postures of the body not only affect its shape, but have much to do with the maintenance of health. In standing, place the feet in the position of walking—one foot in advance of the other a short step with toes pointed directly forward. Hold the head high as if pushing upward a weight, not only in standing but in walking and sitting. Keep the elbows as near the hip line as possible. This is the posture of self-respect and command as well as of health.—*The Medical Women's Journal.*

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For God, Crown and Country.

## Wealth & Welfare.

Lucknow, Friday, 19th August, 1927.

## EDITORIAL.

### PUBLIC HEALTH IN MADRAS PRESIDENCY.

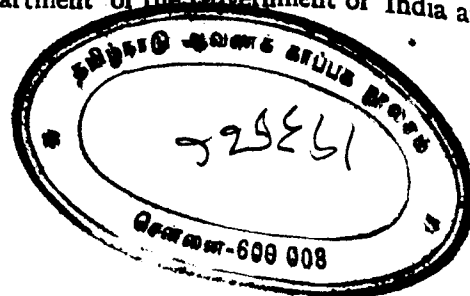
An interesting and highly instructive report on the Public Health of Madras Presidency in 1926 has been brought out by Lieut. Col. A. J. H. Russel, the Director of Public Health. It is a record of academic accomplishment. Judged by the report, the out-turn of public health propaganda undertaken by the Department in the course of the year is something tremendous. Public Health is largely a matter of preventive medicine. Judging the Department of Public Health by its reports it must be said that this department is very unlucky in the matter of the vital Statistics. For this Department to function well a reliable data of the incidence and periodicity of diseases should be available. Some curious discrepancies are reported in statistics. For instance, in Anantapur District the number of Small-pox deaths given in the Collector's returns

was ten times the number reported to the District Health Officer and in South Kanara, births of European Children are shown in villages where no Europeans were ever in residence. 1926 cannot be regarded as a healthy year at all. Malaria is making a rapid stride throughout the Presidency. Several prosperous and flourishing centres have been reduced to depopulated hamlets. Stagnation of water is mainly responsible for Malaria playing havoc with the public. Propaganda work is one of the most legitimate functions of the Health Department. It is the imperative duty of the administrations and local bodies to carry into every rural home the lessons of clean living and of healthy environments. During the year under review 70,300 lectures were delivered at 44,200 centres to audience numbering 3,800,000, the largest amount of this work being carried out during the Baby show Tamasha-the Annual Baby Week. Efforts in this direction are intermittent and sporadic. The workers come out mostly for the name and for being dubbed with titles during the periodical honours-lists publication. The Punjab Government is making use of Cinema films in bringing home to the rural population the lessons of Public Health. The Municipal Councils in the Presidency of Madras or the worst sinners in this respect. The provisions of the law relating to Sanitation is defective and incomplete. The success of the Health Department lies in the speedy provision of the educative propaganda work. Students in Schools and Colleges should have Cinema shows regarding the Public Health. Public Health is largely a matter of Preventive Medicine and this importance should be realised by one and all. We cannot congratulate the Director of Public Health on the alertness with which the co-operation of the Journalists was enlisted for doing the propaganda work. Bengal, Behar and Orissa and Central Provinces have done much more useful propaganda work than Madras. Very few useful pamphlets were printed and circulated to the Public. Every Newspaper and journal in the Presidency in English or Vernacular must be having almost in every issue some articles of Public Health. Though we offered to co-operate with the Public Health Department of Madras, we have not had the honour of receiving any communication from the Director of Public Health, Madras, though other provinces in India have been regular in contributing periodical matter of Public Health for publication. Even the workers in the mofussil—most of them—care more for name than for real and substantial work. In the actual prevention and suppression of disease, the Public Health Department, Madras, cannot be commended for the choice of its District Health Officers and it has yet to justify its existence.

The Railways in South India are equally responsible for the spread of the Respiratory Diseases. The Coffee Hotels in the Indian Railway Refreshment Rooms are to a great extent responsible for Respiratory Diseases spreading. The number of deaths from respiratory diseases increased from 45180 in 1921 (1.1 ratio per mile) to 85,602 in 1926 (2.1 ratio per mile). It must be pointed out that this increase has to be taken into consideration side by side with the fact that the registration work done to record the statistics are not complete and correct. The diseases generally continue to confine itself to the poorer classes of the community. The Government of Madras should carry on the propaganda work for health more vigorously and the co-operation of the teachers, students, merchants, lawyers all should be freely enlisted.

### INDIAN INDUSTRIAL INTERESTS.

The gradual but steady passage into alien hands of the valuable and inexhaustive natural resources lying underground in a country does not appear to be a matter that could be viewed with equanimity elsewhere than in India. The natural consequence of the indigenous working of the mineral resources of the country would be the rapid building up of large industrial concerns to turn the raw products into manufactured goods. A wide diffusion of an accurate knowledge of the hidden resources of a particular area is an essential preliminary to the successful launching of any mining enterprise. Valuable data collected, as the results of costly investigations by the Officers of the Geological Department of the Government of India are hidden



away. It is very rarely that this information is available to the Indian Commercial Public and still rarer to find the way for such knowledge being utilised for practical purposes rendered easy. Large Mining Enterprises are in the hands of Agencies or Capitalists other than Indian. As an illustration the Manganese resources of the Central Provinces are almost wholly exploited by companies worked with foreign capital and it is only very recently that indigenous effort has begun to manifest itself in the working of the Ranigunj and Godavari Valley Coalfields. Want of publicity and advertisement has handicapped the Indian Industrialist, in the race for securing prospector's licenses or mining concession. When competition is introduced into a public sale transaction, the highest bid is in most cases bound to be larger than the premium or royalty that could be secured by a tender or private negotiation. The indigenous mining industry experiences various obstacles now existing in the matter of granting prospecting licenses and mining concessions for the exploitation of the underground natural resources of the country by purely Indian Agency. The present method of granting these licenses and concessions could only be characterised as following a hole and corner policy owing to the Government's nervousness in avoiding advertisement and publicity in the initiation of such enterprises. We advocate the discarding of the system of grants either by tender or by private treaty and recommend the more intelligible and profitable method of putting them up to auction. By the adoption of such a course, while due and sufficient publicity is given to the nature and the value of license or concession concerned, the Government also stands to gain in a pecuniary sense. The constitution of a Mining Board with the adequate representation of Indian Commercial Bodies in it, and the enactment of a Legislative measure placing a ban on non-nationals possessing mining leases or exploiting the country's mineral resources are eminently just and reasonable, and would only be doing bare justice to Indian Commercial and Industrial Interests.

#### POLITICS AND RELIGIOUS PREFERENCES.

Public work and Religious preferences are regarded generally as antagonistic. But in these days public work is often governed and even shaped by religious and personal preferences. That the latter serve to shape the ends of politics is well-known in these days. In post-Reform India many instances might be cited. But even in Great Britain and other countries in the West the subordination of politics to personal references is becoming common feature. "There is a strong feeling that the offence of contempt of court by the "Muslim Outlook" should be pardoned. Now it is all very well to sympathise with those imprisoned for it. But how many of those Muslims and Muslim associations who have impetuously taken up the cudgels for the "Outlook" and angrily condemned Mr. Justice Dalip Singh first read the article which constituted the contempt and studied the judgment upon which it was written? There is no hope of progress in India while such active and passive communal enmity prevails. Not one inch can India advance towards Dominion status while it continues; no minority of either community in any province can even wish

for democratic advance under such conditions. Meanwhile inevitably the problem for British statesmen is to ensure that while they are responsible for the preservation of India from internal disorder and external attack, their task shall not be weighted by mischief which can be controlled." Discussing the situation created by what is known as "The Rangila Rasul" agitation, Sir Sivaswami Iyer has contributed an article to the current issue of "New India" wherein he clearly indicates the lines on which the new law asked for should take. "So far as I am aware," Sir Sivaswami Iyer declares, "the Indian Penal Code, comprehensive as it is, contains no provision which renders it an offence to calumniate the founders of religions or for the matter of that even the Gods held sacred by the followers of any religion." Proceeding, he observes; "There are only two groups of sections in the Indian Penal Code which can at all be considered to be germane to the matter in hand, but in neither of them is there any provision to meet the class of cases which have recently arisen. Chapter 15 of the Penal Code deals with offences relating to religion. Section 295 renders it an offence to destroy, damage or defile any place of worship or any object held sacred by any class of persons. The founder of a religion or, for the matter of that, any person of sacred memory cannot be held to be an object within the purview of this section and the acts prohibited refer to physical restriction damage or defilement, Section 296 deals with disturbances to assemblies lawfully engaged in the performance of religious worship or ceremonies, Section 297 deals with trespass in places of worship and acts of indignity to human corpses, or disturbance of persons assembled for funeral ceremonies. Nor is it possible to apply the provisions of Section 298 which deals only with cases of acts done in the sight or bearing of particular persons, Chapter 21 of the Penal Code, which deals with defamation is equally unsuitable for striking at blasphemy. To constitute the offence of defamation, it is necessary that the imputation should harm the reputation of a person. It is absurd to suggest that the reputation of any of the great founders of religions will suffer by scurrilous attacks in the press or otherwise. The ground on which attacks of this character should be prohibited is not the injury likely to be caused to the reputation of the person attacked, but the injury to the feelings of persons by whom that person may be revered. The most appropriate manner in which the necessary alteration can be introduced is by the insertion of a new section after Section 295 in the cognate chapter and not by an unscientific change in the law of libel." "The requirements of the situation," he concludes, can be easily met by introducing after Section 295 of the Indian Penal Code some clause to the following effect:—

"Whenever by words, signs or visible representations intended to be heard read or seen, publishes any remarks of a blasphemous character against any religion, the founder of any religion, the deity of any religion or any reputed incarnation thereof or any prophets, saints or spiritual leaders revered by any class of persons with the intention of wounding the feelings of any class of people or with the knowledge that such attack is likely to wound the feelings of any class of persons, shall be punished with imprisonment of either description for a term which may extend to two years or with fine or with both."

## ON THE LINE.

#### EXCISE CENTRAL PROVINCES 1926.

The Government of Central Provinces is fighting shy of Foreign Liquor interests. It forgoes the chance for a small Excise Income- of initiating a Reform recognised to be necessary for the Public Good. It looks as if the very existence of the Government is bound up with the Excise Revenue although this Province stands easily First in all India in the headway made by it in the reduction of consumption

in respect of country spirits. So far as this class of liquor is concerned there is only 32 per cent improvement required to be made up for the stage of complete abstinence to be reached. Since 1919 the rate of consumption has fallen by 68 per cent in C. P. as against 67 per cent in the next progressive Province the U. P. 50 per cent in the Punjab, 48 per cent in Bombay, 31 per cent in Madras, 18 per cent in Behar, 17 per cent in Assam and 16 per cent in Bengal.

#### PROGRESSIVE, YET ECONOMICAL

Providence, has been merciful to Travancore State and the Financial affluence which the State has hitherto enjoyed must be said to be due to the capability of its administrators as well. The budget estimate for M. E. 1103 is carefully made and the outstanding features of the Revised Estimate for M. E. 1102 are expected to stand at a Revenue of 229.52 lakhs of Rs and an expenditure of Rs. 205.45 lakhs. Almost all the Major earning departments have

contributed substantially to the increase in the Revenue, with some savings on the side of Expenditure. The expected net surplus at the end of M. E. 1102 is Rs. 28.2 lakhs and the expected closing balance is Rs. 131.57 lakhs. Prosperous finance has its problems no less taxing than adverse finance, but it must be stated that the good fortune and the financial prosperity of Travancore State have a melancholy interest. Unfortunately the surplus of Rs. 28.2 lakhs includes the addition of four lakhs to the Excise Revenue. It redounds to the discredit of the State that the Financial prosperity was not made use of for enabling the subjects to lead better, cleaner and happier lives. This State ought to make use of the prosperity as an insurance for Temperance. A policy of ambition would involve a struggle with the custodians of foreign liquor interests. But we must point out that the surplus is utilised to increase the allotment on heads which

are unexceptionable; on Education Rs. 5.89 lakhs more are proposed to be spent. And this expenditure is concentrated mainly on Vernacular Schools, Elementary Education and Secondary School Education. A Lump Sum of 4 lakhs of Rupees is granted to Women's College for raising its status. Rs. 6½ lakhs will go to provide increased facilities of Water Supply and nearly Rs. 13 lakhs towards Railway Expenses. As much as Rs. 17½ lakhs is provided for the improvement of Communications in the State, and in respect of Education and Communication, Travancore has beaten out British India. A striking improvement in Medical relief, a commendable progress in Capital Works and the limited Expenditure on Army and Palace and an adjustment of Expenditure, all led to the Revenue imposed by Direct Taxation on the people being only about Re. one per head. We congratulate the Administration of Travancore State on the

progressive, yet Economical and Cautious policy leading to soundness of the financial position of the State.

#### NO ADVERTISEMENT?

"His Exalted Highness" postponed tour comes off in September when he goes to Marathawadi for a fortnight. Preparations are being made in Aurangabad to give a fitting reception to their Sovereign. The Nizam prefers a simple life and hates all ostentation and show. He has told the people definitely that they should not decorate the city or build any arches or illuminate the town but that they should feed the poor if they desire to show their rejoicings. And this indicates the utilitarian view which His Exalted Highness takes of things and his kind regard for the poor" what a poor show this is when compared to the tour of the Nawab Dewan of Mysore !!! No white-washing or Advertisement !!! No closing of Travellers' Bungalows !!!

#### A SUCCESSFUL ADMINISTRATOR.

Maharaja Sir Kishen Pershad deserves to be congratulated on the success which he has achieved as President of the State Council. It may be remembered that the Residency were opposed to his appointment and the Nizam had to put up a hard fight to get him at the head of the

Executive Council of the State. But His Excellency has succeeded in securing the Resident's favour and to-day the Residency, which opposed his appointment, are as loud in his praise as the Hindus of the State. There is a lurking feeling of discontent and resentment in the heart of some Mussalmans who hate to see a Hindu

at the head of the Government of a Muslim State and complain that the Maharaja is too subservient to the will of the Residency. But if has no greater substance than the fears of the Residency at the time of his appointment that he was too loyal to his Sovereign to carry out the policy of the Residency.



His Excellency The Ex-Prime Minister of Hyderabad (Deccan)  
Maharajah Yaminus Sultanat Sir Kishen Pershad G. C. I. E., Maharajah Bahadur.

## BRITISH OFFICER'S LOYALTY.

"It is gratifying to record that Col. French has succeeded in winning his way to the heart of the people by his just and sympathetic administration of the departments in his charge. He is straight and frank, honest and courteous and the Nizam is well pleased with his work. It was feared in the beginning that having been brought by the Residency he may not show the same deference to the Nizam's wishes which a Mulki minister would show but his loyalty and devotion to his Sovereign have earned him the appreciation of the Nizam who finds him more obedient and more devoted to his person than even his Mulki councillors. He has struck terror in the heart of dishonest officers who are either retiring or resigning. Zealous and public spirited officers receive support and encouragement from him and are displaying greater energy and enthusiasm in the discharge of their official duties."

## RURAL ECONOMICS.

Writing under the above caption the "Indian Daily Mail" (Aug 2) says that not the least important aspect of the great economic revolution that is taking place in India at the present day is the silent, though slow, transformation of village life. Rural and urban life had not much contact with each other in the past but it is no more so. On the one hand, we find modern ideas and the use of cheap factory manufactured articles such as Manchester cloth, tools and kerosine oil, infiltrating into the villages; on the other, we notice the increasing immigration of large numbers of people to the towns and cities mostly in search of labour. The two are to a large extent inter-dependent. But yet rural life in India has not materially changed outwardly except in one respect. Increasing poverty in the villages is in evidence. Agriculture for one reason or another, has suffered most. In spite of the exodus of the rural population to the cities nearly 85 per cent of the people of India continue to live in the villages. Agriculture is the main occupation of the people and not only supplies the raw material for the industries of the city but its products form the bulk of the exports of the country. In such a system of national economy of the position of the villager who produces the raw material, the question whether he gets adequate return for his labour and similar problems must form an integral part of any inquiry into the subject.

## INVESTIGATION DISCLOSURES.

The report of the investigation undertaken by Mr. J. J. Bennison, I.C.S., of Burma Labour Statistics Bureau into the comparative criminality and severity of punishments between the various provinces of India and Burma shows that Burma is preeminent in crime. The figures were worked out per million of the population of each province and for comparison the average of Indian provinces was taken. Burma figures excluded Shan states. The average of five years 1921-25 was considered. Whereas in India 406 persons per million were admitted into jails. Burma gives the high

figure of 1640. Under some of the main offences against person India gave 86, Burma 146. Under theft India admitted 130, Burma 464. Under robbery India gave 7 and Burma 47. Under dacoity India gave 15 Burma 25. Under house-breaking and criminal trespass India gave 16, Burma 195. Figures given refer to admissions to jail. Other figures given show that the number of persons in jail for theft per million of the population in Burma is 19 over six times the number in jail in India for this offence.

## RESERVE BANK CONTROVERSEY.

## MERITS OF A SHAREHOLDER'S BANK.

(By Economicus.)

In view of the importance of the question, it is worth while trying to understand exactly what is in issue between Sir Basil Blackett and the Opposition in the Joint Select Committee on the Reserve Bank Bill, Sir Basil Blackett wants a bank with share capital and, of course, is a Directorate largely chosen in the usual way by the shareholders. The Opposition, on the other hand, want the capital of the Bank to be subscribed by the Government; they also want something more than two thirds of the Directorate to be elected by various commercial constituencies, two or three directors to be nominated by the Government and the remainder to be chosen by the central and provincial legislatures. At first sight these may seem only technical differences, but certain important principles are involved. The Opposition say that if the Bank is a Shareholders Bank then most of the capital will be subscribed by European interests, who will thus capture the Directorate. They want to make quite sure that Indian interests will predominate in the directorate. In this, of course, they are right and it is unthinkable that the predominant interests in India's Reserve Bank should be any other than Indian. But is their solution a good one? It must be remembered that, if the Government subscribe entirely then naturally Government interest will and must prevail. Now, there is not a single banking authority in the whole world who does not strongly oppose Government control over the Central or Reserve Bank of a country. In times of crisis or financial stringency it is fatally easy for Government to validate and manipulate currency and credit if these are in their Control, whilst a strong and independent directorate of the Central Bank can always stand out against this. Also, this idea of the election of Directors of the Central Bank by legislative bodies is entirely foreign to the banking practice of the leading financial nations like the United States of America and Great Britain, because all sorts of influences may be brought to bear during the elections and in any case reasons not primarily financial are almost certain to prevail. Thus the currency and credit systems of the country are exposed to dangers from outside also. The ideal solution it seems to me is a combination of the Government and the Opposition views. Share capital is in accordance with the well tested ideas of the great financial countries and Banking interests. Yet Indian interests must predominate in the

Indian Reserve Bank. This could be ensured first by giving preference to Indian subscribe to the share capital and secondly by giving similar preference to the small shareholder. These are conditions which can easily be inserted in the Bill. A further safeguard of Indian interests can be provided by arranging a shareholders' directorate so as to include representatives of Associated Chambers of Commerce, Co-operative Banks and the like. Another reason for the Opposition's suspicion of the Government proposal is that it is proposed to allow the Imperial Bank to subscribe three-tenths of the share capital, which would put it into a very strong position. The Opposition could come to an agreement with Government either to cut down the amount of share capital allotted to the Imperial Bank, or, if they think necessary, to abolish it altogether. At any rate, the principle of a shareholders' bank has been thoroughly rested and approved of by the great banking nations of the world and if some of the safeguards outlined above are insisted upon by the Opposition, they will, by accepting the shareholders' Bank as modified by themselves, be making as good an arrangement as can possibly be made. In any case, nobody wants the Reserve Bank to be dropped and if it can be had with Indian interest properly safeguarded, the Opposition will have deserved well of the country. (D. E.)

## MATERNITY &amp; CHILD WELFARE.

Maternity relief and child-welfare centres in Madras Presidency which numbered 23 in 1923, 45 in 1924 and 58 in 1925, decreased to 53 in 1926. The decrease is most disappointing in view of the great necessity for a wide expansion of the activities carried on by these centres. It is a matter for great regret that little has been done by local authorities in organizing measures for the relief of mothers and infants. That the health and welfare of the mother and her child is the foundation of the future well-being of the people is now accepted on all hands. Properly organized schemes for welfare work cost only a fraction of the average expenditure on other public utility services. With a managing committee, containing voluntary workers, these welfare centres can do an enormous amount of good and useful work and quickly attract the mothers, who are only too willing to accept advice as to the proper management of their infants.

The ultimate objects of all effort to promote the health and welfare of mothers and young children are these—

- (1) to make maternity safe and less burdensome, less disabling for the mother,
- (2) to give the mother a sound and practical knowledge of the elementary laws of hygiene governing the upbringing of her family,
- (3) to help her to carry out these rules in her own home, and
- (4) to make good unavoidable shortcomings, due to lack of means or social disability.

No one can deny that in this Presidency there is a wide field for philanthropic effort and voluntary work in these directions. The few centres now in being have shown what can be done, but hundreds more are required before assistance can be brought to all who require it. One of the greatest handicaps to progress in the past has been the lack of suitably trained Health Visitors, partly because of the reluctance of Indian women to take up this work and partly because there was no proper training school. The time has come when a suitably equipped and properly staffed training school for Health Visitors is essential, and, the necessary supervision of the teaching should be made available. During the year 406 trained midwives attended 36,564 births in municipal areas whilst in the districts only 542 midwives were available for a total population of over 36 millions. These midwives attended 45,300 births, only 3.3 per cent of the total.

The number of registered infantile deaths during 1926 was 280,552 as compared with 250,000 in 1925. The infant mortality rates being 189.5 and 180.9 per 1,000 births, respectively.

The infant death-rates for the past six years in Madras Presidency are:—

| Year.    | Infant mortality. | Year.    | Infant mortality. |
|----------|-------------------|----------|-------------------|
| 1921 ... | 160.9             | 1924 ... | 179.2             |
| 1922 ... | 166.4             | 1925 ... | 180.9             |
| 1923 ... | 173.7             | 1926 ... | 189.5             |

The highest rates were recorded in Madras (281.6), Kistna (263.9), Godavari, West (256.9), Guntur (224.9) and Ganjam (222.1), and the lowest in Ramnad (146.9) and Malabar (159.7). When compared with 1925, the registered infantile mortality rose in 21 districts and fell in 5 districts. The largest increase is recorded in Vizagapatam (+39.3), while the greatest decrease in South Arcot (—18.3). Compared with the quinquennial average, the infant mortality rates for 1926 show an increase in 21 districts in the Presidency. It is to be noted that since 1921 the registered rate has increased year by year but there is good reason to believe that the figures still under-estimate actual conditions. The following table gives the

percentage of infant deaths in four different age groups for the six years 1921—26:—

| Age at death.         | Percentage of infant deaths. |      |      |      |      |      |
|-----------------------|------------------------------|------|------|------|------|------|
|                       | 1921                         | 1922 | 1923 | 1924 | 1925 | 1926 |
| Under 1 week          | 26.7                         | 31.7 | 34.3 | 34.8 | 35.5 | 34.1 |
| 1 week to 1 month     | 16.3                         | 16.8 | 16.5 | 16.7 | 16.9 | 16.7 |
| 1 month to 6 months   | 21.9                         | 22.3 | 21.9 | 24.2 | 23.9 | 26.5 |
| 6 months to 12 months | 35.1                         | 29.2 | 27.3 | 24.3 | 23.7 | 22.7 |

These percentages remain remarkably constant. Throughout the Presidency a large sacrifice of child-life continues from what are definitely preventable causes. By the first month of infant life, the annual figures for this period being at least 50 per cent of the total. In this age period, death results from one or other of the group of causes included in the term "developmental" or "anti-natal." Immaturity, prematurity, congenital defect, debility and atrophy all play an important part under every environmental condition. They are all, indeed, dependent on the physical health of the mother, and if the lesson from these figures is to be learned, measures must be instituted by which mothers can be cared for and supervised during the "anti-natal" period. The teaching of mothercraft must also be undertaken if the child is to have a fair chance of survival during the dangerous first month of life. Large variations in the death-rates occur in individual districts. These are illustrated by the following:—

| Name of district | Percentage of infantile deaths in first week of life. |
|------------------|-------------------------------------------------------|
| Coimbatore ...   | 50.7                                                  |
| Salem ...        | 41.9                                                  |
| Ganjam ...       | 21.0                                                  |
| Nilgiris ...     | 20.4                                                  |

## VITAL STATISTICS (MADRAS).

Accurate compilation and correct interpretation of vital statistics constitute the very foundation of all sanitary effort. From accurate compilation it is possible to obtain information of facts relating to the health of the people and the diseases from which they suffer; and their correct interpretation indicates the lines along which preventive measures should be planned

and by which deleterious influences can be counteracted. Judged from these two standpoints it is not possible to place too great faith either in the census figures, or in those relating to births and deaths. In the first place, the Births and Deaths Registration Act of 1898 in compulsory only in parts of the Presidency of Madras. In the second place, municipal and local authorities and other officials entrusted with this work are, for the most part, content to register such information as is placed before them or as they obtain by chance, and consider that their obligations in this respect, and to the Public Health Department, are entirely fulfilled by these dubious methods. Monthly returns prepared from such data are, therefore, bound to be inaccurate and defective, and, until registration is made generally compulsory and the machinery for registration is improved in accordance with the recommendations repeatedly made by the Public Health Department, the Presidency statistics will fail to provide the information which it is so necessary to have before any great advance in sanitary matters can be expected. As they exist, the figures are of little assistance to the Public Health Department in its efforts to investigate the causation and prevention of disease. Tuberculosis, leprosy, and venereal diseases are all said to be on the increase, but the evidence on which that opinion is based is inexact and scanty. Influenza and post-influenzal affections, measles and chickenpox, dengue, kala-azar, malaria, beri-beri, the enteric fevers, nervous and cardiac diseases, and many other ills to which man is heir in this country, and to which preventive measures might be usefully applied, all are buried in this vast, common grave, and the investigator has little hope of obtaining more detailed and more reliable information, so that identification, classification, and prevention are all alike impossible.

## MEDICAL INSPECTION OF SCHOOLS AND COLLEGES.

The medical inspection of school children is a subject which has been under discussion for several years past. Government have now ordered the compulsory medical inspection of all pupils attending secondary schools, and the medical inspectors' reports, which must be prepared in accordance with approved schedules and forms, are forwarded to the Surgeon-General, for evaluation by him and the Director of Public Health, before they are submitted to the Director of Public Instruction for payment of grants. The reports sent in during 1926 prove that a large number of minor disabilities exist in the school populations, and it would be of the greatest advantage to the health of the whole Presidency, were medical inspection made compulsory in all primary schools as well. Information is lacking as to the health conditions of the younger generations, and, until this is forthcoming the prevention of disability cannot be usefully planned. Moreover, the inspections can be made the opportunity for providing lessons to the school children in connexion with the maintenance of

## The Malabar Weaving Company.

It is an undoubted fact that India is not at the present making the most of her possibilities in the matter of the supply of the world's market with cotton. This is made clear by a reference to Government statistics, which show that the United States of America supply more than 50 per cent of the total amount required for consumption, while India does not contribute more than 16 per cent. Another unsatisfactory feature is that the American cotton is far superior to the other in quality, and this fact accounts for the very serious diminution in the number of orders from English manufacturers. It is however, some consolation to learn that agriculturists in India, are endeavouring to remedy this most unsatisfactory State of affair. Cotton is one of the indigenous product of India, and it has been cultivated there for a very great number of years. Improved methods of weaving have been introduced, credit is due to those who are trying to grow better-class raw material, and to those who-like the Malabar weaving Coy-are anxious to offer to public manufactured articles of the highest quality.

This company was formed in 1901, by Mr. T. Christian, who for 35 years previously had been connected with the well known - Basel Mission Industries at Mangalore and Cannanore. Unpretentious premises were opened at Cannanore, in which there were 10 looms employed in the manufacture of cotton trousering and coatings, but an extraordinary demand for these articles sprang up and extension followed hard upon extension, until there were in November 1924-45 hand looms turning out cotton



The Company has a very large annual turnover, obtained principally through travelling agents in India, Burma and Ceylon. Dyeing cotton yarn is carried out on the premises when practicable, but in some instance dyed yarn is imported from England and Germany. Specimen of manufactured article from the company's factory have been accorded high praise at Industrial exhibition, and gold, silver, and bronze medal have been gained at Cannanore, Ettapuram, Nagpur, Calcutta Madras, Vizagapatam, and Mysore. The staff of employees, have grown from 10 weavers and 5 women in 1901 to more than 100 skilled workmen and women in 1924. A few months after Mr. Christian commenced business he admitted two gentlemen into partnership, but they retired very shortly afterwards, leaving Mr. Christian in full ownership. Messrs. A. T. Christian and E. S. Christian—son and grand-son of the proprietor—are now assisting in the management of the business. The premises cover more than an acre of ground in the European portion of Cannanore, near to the military barracks. Further, they adjoin the compound of a well-known hostelry, and Mr. Christian is always pleased to receive visit from the hostel resident, and he is happy when he can conduct them over the work and explain to them interesting processes of manufacture.

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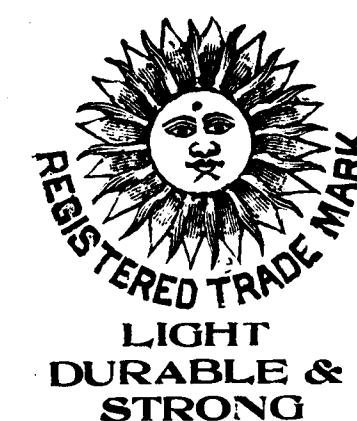
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health, and propaganda work of this kind is more than desirable. The Director of the Ankylostomiasis Campaign has suggested that all medical inspectors should be provided with the necessary drugs for giving hookworm treatment to every child coming up for examination, and this proposal is now under consideration. Proposals have also been made by the authorities of the University of Madras to introduce compulsory inspection of all college students, at least twice during their collegiate careers. This is a move in the right direction, and deserves hearty support.

#### INDUSTRIAL HYGIENE.

District and Municipal Health Officers, are expected to supervise the sanitary conditions of all factories and mills within their jurisdiction. Any recommendations they may wish to make are forwarded to the Commissioner for Labour and the Chief Inspector of Factories. The Public Health Department has noticed that many local bodies grant permission for the construction and establishment of factories and workshops without giving any consideration to the interests of persons living in the neighbourhood, or to the amenities of the locality. Such action very often results in prolonged litigation, because powerful vested interests are allowed to supervene. In several recent cases, District Collectors have been compelled to suspended the resolutions of local bodies, and Government have ordered their permanent suspension. In order to check this tendency to ignore health conditions, the Government should issue instructions to all local bodies requiring them in every such case to consult local Health Officers before permission to erect or establish factories is granted. Where building by-laws are in force, the proposed site, the site-plan and the specifications of every building should be seen and approved by the Health Officer, and this rule should be applied with especial force in the case of all new factories and workshops.

#### HOOKWORM.

The report of the Director of the Ankylostomiasis Campaign on this subject shows that the campaign was conducted mainly in the Southern and West Coast districts of the Presidency, and on several planting estates in the Malabar-Wynaad. At the Penitentiary in Madras investigations were made in order to determine the length of life of the adult hookworm in the human body, and to ascertain the rate of dying-off of these parasites.

The number of persons examined during the year was 31,493, of whom 26,464 or 84 per cent were found to harbour hookworms. The prevalence of the disease was found to be greatest in the Malabar District, where the intensity of infestation is reported to be two or three times that of any other district. During the course of the intensity surveys carried out during the year, observations were made to

determine the factors, natural or artificial which acted either favourably or adversely upon the spread of hookworm infection. It was established that all the factors favourable to the development of disease are almost constantly present in the West Coast Divisions of the Presidency, and that the one inhibiting factor in the Central and East Coast districts is the paucity of rain combined with the intense heat of the sun's rays during the greater part of the year. During the year attempts were made with some success to teach the largest possible number of people the chief factors involved in the pollution of the soil. Special efforts were made by means of lectures and lantern slide demonstrations, motion picture exhibitions, and by striking demonstrations of hookworms, eggs and larvæ, to familiarize the students of every school visited by the staff with the essential facts about the disease and the methods by which it can be controlled. The failure of the efforts made in the North Arcot District to eradicate the disease has demonstrated the fact that treatment and educational propaganda alone are insufficient, and that the solution of the problem depends mainly upon the prevention of soil pollution, which can only be effected if the rural population can be induced to cultivate the habitual use of sanitary latrines. A determined beginning in this direction was made in the Madras District. The District Board agreed to try the experiment in one or two villages, and allotted a sum of Rs. 20,000 for the construction of latrines. The scheme was inaugurated at Usilampatti, where a number of latrines of approved design were constructed, and every possible step was taken to bring the use of the latrines into favour with the people. The results achieved in this area are so far satisfactory, and a demand for more latrines has been made to the District Board, which is also making arrangements for the construction of similar latrines in the other villages in the district. In order to organize and assist in an anti-hookworm campaign in the rubber and tea estates in the Presidency, where the disease is especially prevalent owing to climatic conditions, the Government have sanctioned the appointment of an additional first-class Health Officer, who will work under the Director of the Campaign, and will tour in these areas and advise the planting community on the preventive measures required.

#### EMIGRATION.

The figures for emigration to Ceylon and the Straits Settlements for the last four years are as follows:

|      |     |     |     |         |
|------|-----|-----|-----|---------|
| 1923 | ... | ... | ... | 126,117 |
| 1924 | ... | ... | ... | 148,438 |
| 1925 | ... | ... | ... | 154,584 |
| 1926 | ... | ... | ... | 215,783 |

The numbers show a steady increase, but although every district was represented, the greater proportion was contributed by North Arcot (40,326), Trichinopoly (39,541), Salem (32,050), Tanjore (17,632)

Chingleput (14,394), Madura (13,343), South Arcot (13,032), and Malabar (10,900). Only 175 of the total were skilled labourers. Immigrants returning from Ceylon totalled 60,007. Those from the Straits Settlements numbered 911, but this figure does not include those returning through the Port of Madras, who paid their own fares.

#### DEATH RATES IN INDIA.

The following statement shows the death-rates registered in the different provinces in India during the past five years:—

| Provinces         | Death-rates per mile in |       |       |       |       |
|-------------------|-------------------------|-------|-------|-------|-------|
|                   | 1922                    | 1923  | 1924  | 1925  | 1926  |
| Punjab            | 22.07                   | 30.94 | 43.43 | 30.0  | 36.52 |
| Central Provinces | 29.3                    | 30.58 | 32.59 | 22.27 | 34.33 |
| Bombay            | 23.61                   | 23.89 | 27.63 | 23.67 | 28.53 |
| Bengal            | 25.2                    | 23.50 | 25.86 | 24.90 | 24.74 |
| Bihar and Orissa  | 24.13                   | 23.04 | 29.10 | 23.69 | 25.71 |
| Assam             | 26.9                    | 23.54 | 27.30 | 22.52 | 23.02 |
| United Provinces  | 25.01                   | 23.37 | 28.29 | 24.78 | 25.10 |
| Madras            | 21.0                    | 22.20 | 24.54 | 24.40 | 25.6  |
| Burma             | 22.23                   | 20.87 | 21.50 | 18.75 | 20.92 |

#### BIRTH RATES IN INDIA.

The following statement gives the registered birth-rates for the different provinces in India for the years 1922-26.

| Provinces         | Birth-rates in |       |       |       |       |
|-------------------|----------------|-------|-------|-------|-------|
|                   | 1922           | 1923  | 1924  | 1925  | 1926  |
| Punjab            | 39.31          | 43.16 | 40.05 | 40.10 | 41.65 |
| Central Provinces | 35.80          | 45.63 | 44.18 | 43.90 | 46.03 |
| United Provinces  | 32.17          | 36.04 | 34.72 | 32.73 | 34.20 |
| Bihar and Orissa  | 35.03          | 37.02 | 35.70 | 35.63 | 37.28 |
| Burma             | 29.69          | 29.51 | 27.40 | 25.38 | 27.59 |
| Assam             | 32.39          | 33.57 | 35.60 | 34.67 | 37.05 |
| Bombay            | 28.40          | 28.82 | 31.04 | 29.08 | 30.82 |
| Bengal            | 27.40          | 29.90 | 29.45 | 29.60 | 27.43 |
| Madras            | 30.00          | 33.10 | 34.90 | 33.71 | 36.1  |

## SCISSORS.

#### JUDGE'S PHILOSOPHY

##### SEVEN RULES FOR MARRIAGE

The following seven rules for a happy marriage or offered by Judge Joseph Sabath, of Chicago, who has presided over no fewer than 22,000 divorce trials:—

1. Keep in step with your partner's mind, body and soul.
2. Remember that vulgarity and successful marriage are mortal enemies.
3. Compromise is the anti-toxin that destroys the germ of divorce.
4. To have mothers-in-law is fortunate but to live with them is dangerous, and to criticise them is fatal.
5. Find out your beloved's ideas of matrimonial ethics before the wedding; then make them the basis of your love life.
6. Park your past at the altar—and never go back to claim it.
7. Courtship is the preparatory school for the college of matrimony. The real study of the art of love begins on the honeymoon and lasts a lifetime.

#### TINNED FOOD SAFETY

The time honoured use of tin as a lining for metallic food containers seems to have been fully vindicated by some recent experiments carried out under the authority of the U. S. Department of Agriculture. According to a note in *Science*, asparagus and pumpkins were selected as two kinds of preserved food which might be expected to enter into chemical union with the tin lining of the cans in which they had been

preserved for a long period, but as a result of extensive test these vegetables so preserved failed to produce the slightest unfavourable effect on guinea pigs which were fed with them. A still more satisfactory demonstration of the harmlessness of tin was obtained by administering the metal itself in twogramme lots to human beings over a period of five days. The most refined analytical methods, it is stated, failed to detect any trace of tin in the blood stream, indicating that none had been absorbed by the body. Another coating for metallic food containers which is generally supposed to render them absolutely harmless is enamel, and in a further series of experiments by the same department it is proposed to test the soundness of this belief.

#### ADULT EDUCATION

How fast can adults learn as compared with those of less mature age? This is a question which has been engaging the attention of educational authorities in America, and as the result of recent experiments on the subject certain preconceived ideas as to the extreme difficulty of acquiring fresh knowledge after middle age have been largely upset. According to a note in *Science*, the subjects of these experiments, which were conducted by Dr. E. L. Thorndike, professor educational psychology at Columbia University, consisted of two parallel groups of persons, the one composed of individuals of thirty-five years

and over, with an average age of 42, and the other having individual ages between 20 and 24, with an average of 22. In learning the artificial language, Esperanto it was found that the older group learned about five-sixths as fast as the younger, while both groups learned more quickly than children. In ordinary school subjects, such as reading spelling arithmetic in which presumably the preliminary knowledge possessed by those chosen from each group for the experiment was equally rudimentary, the progress of the 42-year olds was again about five-sixths of that shown by the 22 year batch, and here again both got on faster than children of twelve of approximately the same natural degree of brightness. Other experiments of an extensive character were carried out with adults learning algebra, science, foreign languages, and the like in evening classes, and with adults learning shorthand and typewriting in secretarial schools, and the results in these as well as in the previous one's seem to justify the following general conclusions. Ability to learn rises until about 20. Then there is usually a stationary period of some years, after which learning ability declines, but at a very slow rate, approximately one per cent for every year. It is in fact for the most part lack of opportunity or desire that stands in the way of adults adding to the mental equipment with which they leave school or college.

## MISCELLANEOUS.

#### THE NEW LOAN.

It may be remembered in the case of last year's loan there was some ambiguity and considerable soreness over the manner in which it was placed on the market. On the same day on which the terms of the loan were announced attention was drawn in the *Statesman* to the absence of any clear announcement in the Government *communiqué* in regard to the conversion of the 1926 Bonds. The Controller of Currency issued a notification two days later that "subscriptions in the form of 1926 Bonds will be given no preference over subscriptions in the form of cash." The *Statesman*, however, was of the opinion that there was "no argument why a modest measure of preference should have been denied to 1926 Bonds." In this connexion it made the suggestion that all applications of 1926 Bonds tendered for conversion on the first day should be allotted in full and that no such guarantee should be given in respect of subsequent applications. It now appears that though the suggestions made by the *Statesman* were not put into effect by the Finance Member so far as the last year's loan was concerned, these suggestions have now been given fullest consideration in this year's loan announcement. The 1927 Bond holders will not only get a modest preference but a satisfactory measure of preference in that all the conversion applications from 1927 holders received in the first two days will get full allotment. It is also to be noted that the idea

of a *pro rata* allotment in respect of cash applications has also been incorporated in the new loan terms announced on Tuesday.

The market was expecting a 4 per cent 1960-70 loan at about ninety. The fact that though there are heavy sized loans to be redeemed in 1930, 1931, 1932, 1933 and 1935, the Finance Member makes the new loan a 1934-37 issue is the final and conclusive proof of Sir Basil Blackett's great optimism in regard to the growing credit of the Indian Government and the reduction of the borrowing rate of the Government of India to a figure even lower than 4 per cent by the year 1937. Whether this optimism will be justified by future events will depend upon international politics and international economics as well as Indian politics and Indian economics. The unique achievement of Sir Basil Blackett is that in the last two years he has made the credit of the Government of India almost an isolated entity by itself, so much so that the graph indicating the price level of the rupee securities of the Government of India will be altogether entirely different from the graph representing the price level of any other Government stock say on the London market. How far this phenomenon could be continued is more than can be said at the moment. But it is obvious that with the credit conditions of the country placed in the hands of a properly functioning Reserve Bank, there is every reason to hope for the best in the coming years.

The unexpected reversion to short term

borrowing which has elicited comment in financial circles is evidently to gauge the pulse of the market during the next few years with a view to arrive at a definite policy in respect of the large loan programmes which have to be launched to redeem the issues maturing during the first half of the next decade.

#### EXCHANGE.

The exchange market continues to be dull with a somewhat steady tendency at the close. All tenders of sterling received on Wednesday, July 6, were rejected as the rates offered did not come up to Government anticipations. This total rejection was, however, not altogether unexpected as the ready exchange rate during the week touched as low a point as 1s. 5 13/16d. With foreign trade on an anaemic scale and money in plentiful supply the disparity between the ready and forward positions which was commented on last week has continued to be the predominant feature of the week under review. No change in the present conditions can be expected in the immediate future, but with the jute season within sight and the absorption of a certain proportion of superfluous funds by the New Loan, the day of revival is probably not very far off. Improvement will be accelerated if Government continue to postpone their purchases of sterling for some more time and this they can well afford to do as they are under no imperative necessity at present of laying in further funds at London.

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3. It should have not less than 62% of fatty (soapy) matter.
4. It should not contain excess of moisture.

See the following table of analysis of soaps and judge for yourself which soap is good and which bad.

| Name of Soap.              | Percentage of fatty acids. | Percentage of Silicate of soda. |
|----------------------------|----------------------------|---------------------------------|
| (a) BORAX SOAP (IMPORTED.) | 47.3                       | 26                              |
| (b) do. do.                | 46.0                       | 27                              |
| (c) BORAX (Indian Make)    | 56.6                       | nil                             |
| (d) VEGETOL                | 62.0                       | nil                             |
| (e) KERALA ROSE            | 83 to 84                   | nil                             |
| (f) KERALA SANDALWOOD      | 83 to 84                   | nil                             |

(a) and (b) are positively injurious to the skin. (d), (e) and (f) are the best.

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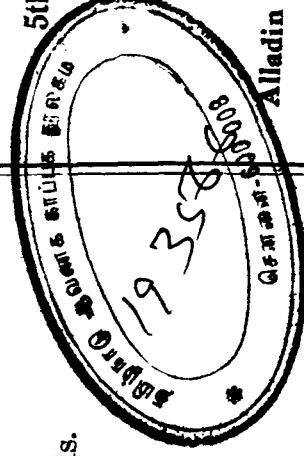
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