The history of inoculation and vaccination for the prevention and treatment of disease: lecture memoranda, Canadian Medical Association, London, Ontario, 1913 / [forward by] Henry S. Wellcome.

### **Contributors**

Burroughs Wellcome and Company. Canadian Medical Association. London School of Hygiene and Tropical Medicine

### **Publication/Creation**

London: Burroughs Wellcome & Co., [1913?]

### **Persistent URL**

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# THE HISTORY OF ... INOCULATION AND VACCINATION



LECTURE MEMORANDA
C.M.A. MEETING
LONDON, ONTARIO
1913



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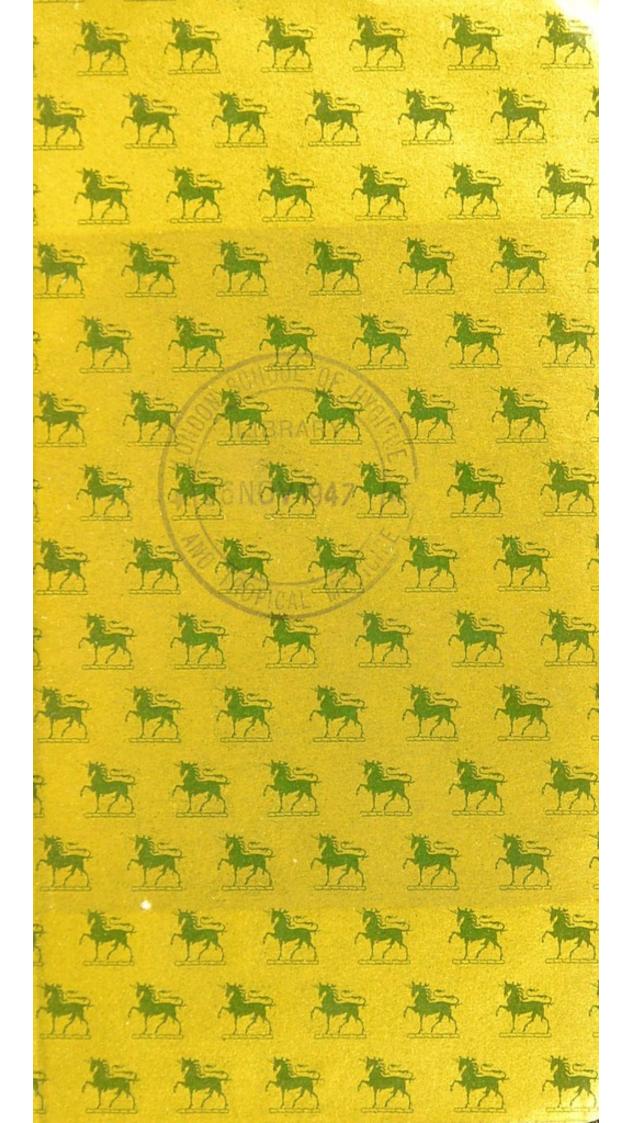
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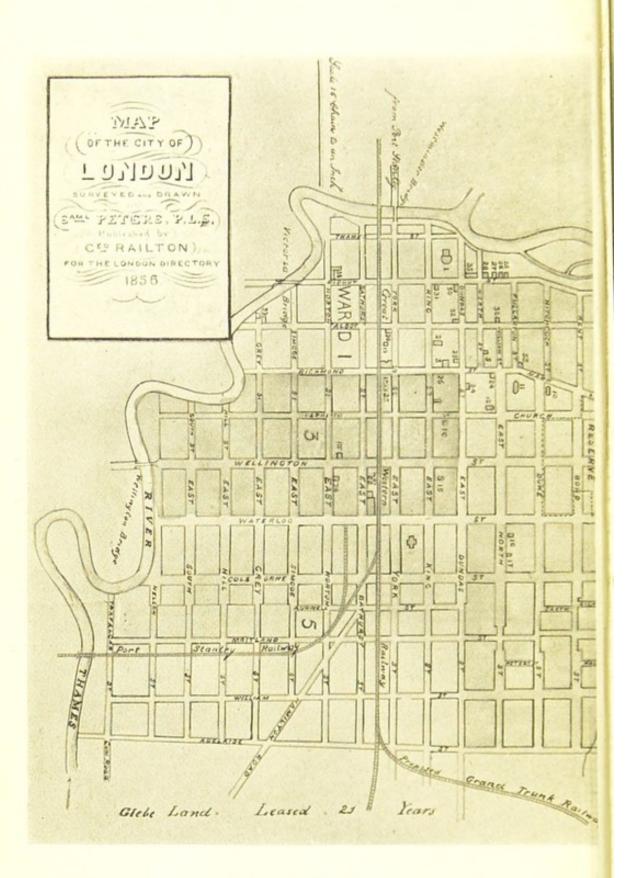
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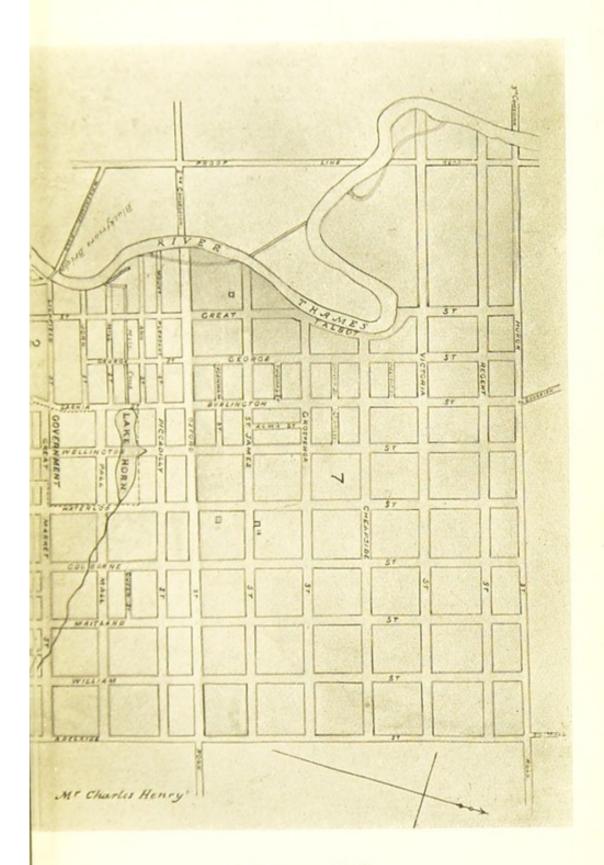
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MAP OF LONDON



ONTARIO. 1856



"VACCINATION"

DR. JENNER PERFORMING HIS FIRST VACCINATION
From a bronze by GIULIO MONTEVERDE

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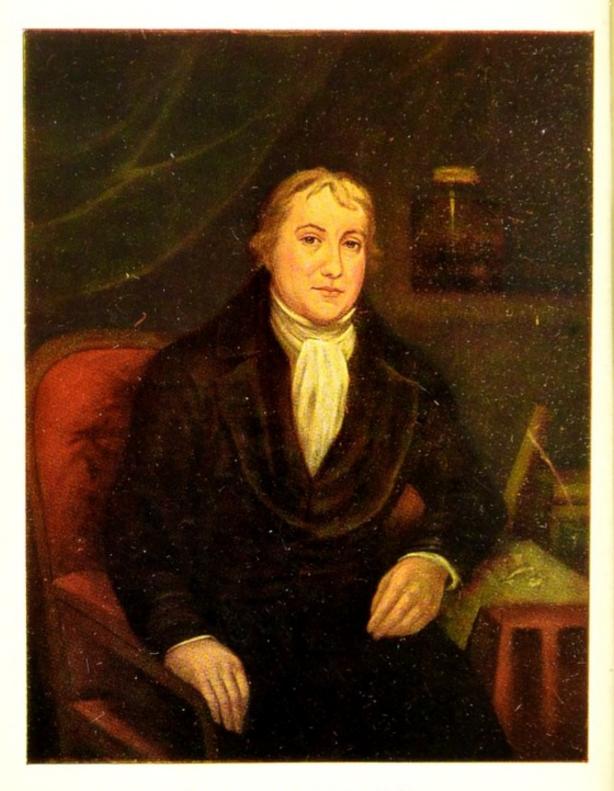
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EDWARD JENNER, M.D.

THE DISCOVERER OF VACCINATION

Born, 1749 Died, 1823

### THE HISTORY OF INOCULATION

AND

### VACCINATION

FOR THE

PREVENTION AND TREATMENT OF DISEASE

Canadian Medical Association
LONDON, ONTARIO

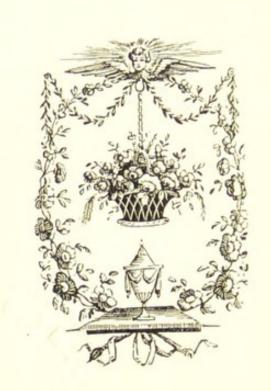
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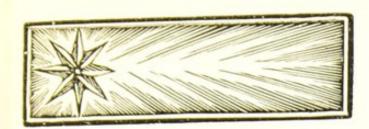




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## THE HISTORICAL MEDICAL MUSEUM LONDON (ENG.), 1913

THE Historical Medical Museum, in connection with the history of medicine, chemistry, pharmacy and the allied sciences, which I have been organising for some years past, will be opened on June 24, 1913, at 54a, Wigmore Street, London, W. (England).

With the valuable assistance of many who are also interested in this subject, and by their kind co-operation, a most interesting collection of objects illustrative of the history of the healing art, has, I am pleased to state, been brought together. The ground covered is comprehensive, and most branches of medicine, surgery and the allied sciences will be represented, from the early days of the world's civilisation down to more recent times.

The Museum, which is strictly professional and scientific in character, will be open from 10 a.m. daily. The general public will not be admitted. Tickets of invitation will be forwarded on receipt of a professional card addressed to the Secretary, Historical Medical Museum, 54a, Wigmore Street, London, W. (England).

HENRY S. WELLCOME



### THE HISTORY OF INOCULATION AND VACCINATION

### FOR THE

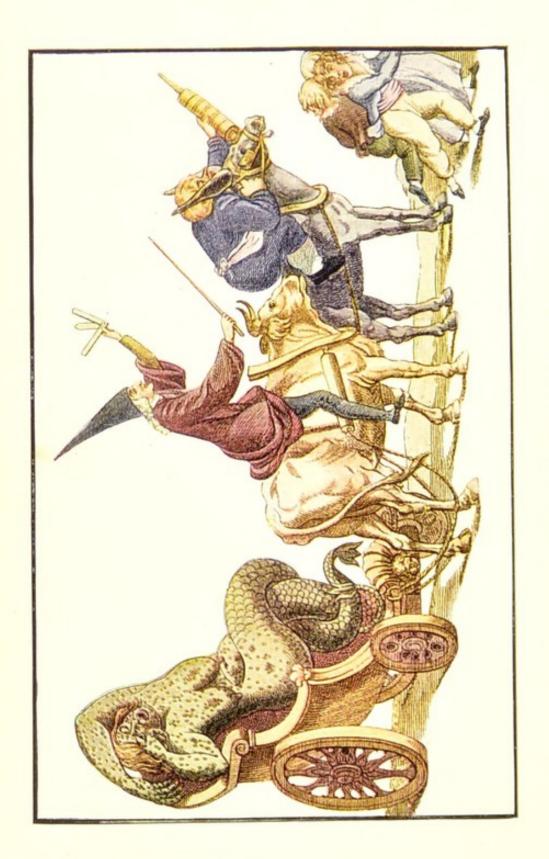
### PREVENTION AND TREATMENT OF DISEASE

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### NOTE

The illustrations used as Head-pieces. Tail-pieces. etc., in this book are reproduced direct from the woodcuts of the celebrated English engraver, THOMAS BEWICK, who was a contemporary of Jesty and Jenner.



From a French caricature of the XVIII century

## THE HISTORY OF INOCULATION AND VACCINATION

### FOR THE

### PREVENTION AND TREATMENT OF DISEASE

### CHAPTER I

THE PRACTICE OF INOCULATION IN ANTIENT TIMES

The practice of inoculation for the prevention of disease is one of considerable antiquity. The period of its discovery can only be conjectured, but there is little doubt that even in remote times it must have been recognised by man, that certain diseases occur once only during the life of an of inoculation individual, or that after recovery he is generally immune against further attacks of the same disease. He also probably noticed that even a mild form of a complaint often conferred a certain protection against a further attack.

The earliest attempts to utilise this protective act of Nature probably consisted in exposing children to the infection of some disease such as measles, in a mild form, in order to protect them against severer forms of the complaint in future. This custom was practised down to comparatively recent times.

Thus it is probable that a vague appreciation of the principles of immunity existed at a very early period. From this knowledge it was but a short step to the artificial production of certain diseases; especially when it was found, as in the case of smallpox, that a mild form of the complaint could be induced by the inoculation of the contents of a pustule into a healthy subject, and that such an inoculation was to some extent a safeguard against the possibility of contracting a severe attack of the disease.

From accounts recorded by explorers, there is evidence that inoculation in some form has been practised among savage tribes and barbaric peoples in various parts of the world, from an unknown period. It is probable that the custom had its birth in India and the Far East, and thence spread westward to Africa and Europe.

Colonel Serpa Pinto, the Portuguese traveller, found in 1877 that certain races in North-east Africa practised a form of inoculation against the bites of poisonous

Inoculation against snake poisoning snakes. He states that they mix the venom of serpents with certain vegetable juices, and rub the brown paste so formed into incisions in the skin He was thus inoculated himself, and

of the arm. He was thus inoculated himself, and states that the operation was followed by pain and swelling, but it seemed to be effective and to produce an immunity to certain poisons, as he was afterwards bitten by a venomous snake without any after-effects.

The bush negroes in Surinam also are said to practise a similar method of inoculation to protect themselves against the bites of poisonous snakes.

Bruce, in his "Voyage to the Sources of the Nile," 1790, says he found that inoculation as a protection against smallpox had been practised in Nubia from time immemorial by the negresses, the Arab women,

Nubians, Shillooks, and other native tribes. The operation was called by them "tishjerée" and "tidderé," or, as among other African nations, "buying the smallpox." The method was by contact. A woman would bind a piece of cotton material round the arm of someone suffering from smallpox, which, when impregnated with the virus, she would apply to the arm of her child. Bruce states that "nobody was known either in Sennaar or Abyssinia who had had smallpox more than once."

Inoculation as a preventive of smallpox was known to the Ashantees, and Bowditch states that a method of inoculation has been known and practised among the Moorish and Arab tribes in Northern Africa from antient times, to protect them from smallpox. They inoculate their patients both on the arms and legs in seven distinct places, thus using a mystic number.

Among some of the savage tribes that inhabit the regions of the Upper Congo, travellers state that a method of inoculation to prevent syphilis is practised by the natives.

Felkin, in his "Travels among the Baris of Lado," 1882, says that "smallpox is often very prevalent in these districts, and also venereal diseases. At one time they were so bad that inoculation was practised, and this has since become the general law. It is performed over the left breast, and the natives say they believe the disease will be Inoculation for stamped out in time, so much good and venereal has resulted from the practice. It is a noteworthy fact that they have discovered this method, for after many enquiries I am quite certain it has not been introduced from foreign sources."

In other parts of Africa, also, explorers have recorded that they found inoculation known to, and practised by, the natives. Among the negroes in Senegal the practice of inoculating children on the arm against smallpox was a common one. After the operation they were made to abstain from animal food, and were allowed to drink freely of water acidulated with lime juice.

De Rochebrune relates that the Moors and Pouls of Senegambia have for ages inoculated their cattle against pleuro-pneumonia. "The point of a knife or dagger of primitive form Pleuro-is plunged into the lung of an animal cattle that has died of the disease, and an incision, sufficient to allow the virus to penetrate below the skin of the healthy animal, is made into the supranasal region."



A MALABA WOMAN INVOKING THE GODDESS OF SMALLPOX AND CARRYING FIRE ON HER HEAD SYMBOLIC OF THE DISEASE

From a native drawing

It is stated that at Berne, in Switzerland, in the eighteenth century a similar form of inoculation against pleuro-pneumonia was practised.

According to Sternberg, the natives on the banks of the Zambesi cause animals afflicted with pleuropneumonia to swallow a certain quantity of the liquid from the pleural cavity of an animal recently dead. The method, however, which is employed most extensively, is that said to have been discovered by the Boers. This consists in inoculating animals in the tail, by means of a syringe or worsted thread, with serum from the lungs of an animal recently dead, or with virus obtained from the tumefaction produced by such an inoculation in the tail.

From evidence that has been gathered from various parts of the world, the practice of inoculation appears to have originated with smallpox, a disease of which the early history is somewhat obscure. It may be interesting, therefore, to recapitulate briefly what is known of its origin.

The antiquity of the disease in the Far East appears to be without doubt, but the documentary records concerning its first appearance are shadowy and uncertain. According to The origin of smallpox and tradition, smallpox appears to have had inoculation its origin in India, where inoculation is said to have been practised over a thousand years before the Christian era.

Dhanwantari, the Vedic father of medicine, and the earliest known Hindu physician, who is supposed to have lived about 1500 B.C., is said to have been the first to have practised inoculation for smallpox. It is even stated that the antient Hindus employed a vaccine, which they prepared by transmission of the smallpox virus through the cow. King quotes the following, which is stated to be translated from the writings of Dhanwantari:—

"Take the fluid of the pock on the udder of the cow or on the arm between the shoulder and elbow of a human subject on the point of a lancet, and lance with it the arms between the shoulders and elbows until the blood appears. Then, mixing this fluid with the blood, the fever of the smallpox will be produced."

Lord Ampthill, Governor of Madras, at the opening of the King Institute in February, 1905, said: "Colonel King gives clear proof that the antient caste injunctions of the Hindus were based on a belief in the existence of transmissible agents of disease, and that both Hindus and Mohammedans used inoculation by smallpox virus as a protection against smallpox; and certain it is that long before Jenner's great discovery, or, to be more correct, re-discovery of vaccination, this art of inoculation was used for a while in Europe, where it had been imported from Constantinople, and the knowledge of medicine which flourished in the Near East at the commencement of the Christian era, emanated, as I have already shown you, from India. It is also very probable, so Colonel King assures me, that the antient Hindus used animal vaccination. secured by transmission of the smallpox virus through the cow, and he bases this interesting theory on a quotation from a writing by Dhanwantari, the greatest of the antient Hindu physicians."

Holwell, writing in 1757, gives some interesting details as to the method of inoculation employed by the Hindus. He states: "It is performed in Indostan by a particular tribe of Brahmins, who are delegated annually for this service from the different colleges scattered throughout the distant provinces. Dividing themselves into small parties of three or four, they plan their travelling circuit in such a way as to arrive at the places of their expected destination some weeks before the usual return of the disease; they arrive commonly in the Bengal provinces early in February, although

in some years they do not begin inoculation before

March, deferring it until they have considered the state of the season, and acquired information of the state of the distemper.

"The inhabitants of Bengal, knowing the usual time when the inoculating Brahmins annually return, observe strictly the regimen enjoined, whether they determine to be inoculated or not; this preparation consists only in abstaining for a month from fish, milk, and ghee (a kind of butter made generally of buffalo's milk); the prohibition of fish refers only to the native Portuguese and preparatory to inoculation Mohammedans who abound in every province of the empire. When the Brahmins begin to inoculate, they pass from house to house and operate at the door, refusing to inoculate any who have not, on a strict scrutiny, duly observed the preparatory course enjoined them.

"It is no uncommon thing for them to ask the parents how many pocks they chuse their children should have. Vanity, we should think, urged a question on a matter seemingly so uncertain in the issue; but true it is that they hardly ever exceed or are deficient in the number required.

"They inoculate indifferently on any part; but, if left to their choice, they prefer the outside of the arm, midway between the wrist and the elbow for the males; and the same between the elbow and the shoulder for the females. Previous to the operation, the operator takes a piece of cloth in his hand (which becomes his perquisite if the family is opulent), and with it gives a dry friction upon the part intended for inoculation for the space of eight or ten minutes, about the Method of compass of a silver groat, just making inoculation the smallest appearance of blood; then opening a linen double rag (which he always keeps in a cloth round his waist), he takes from thence a small pledget of cotton charged with the variolous matter, which he moistens with two or three drops of the Ganges



## THE 0 1 POWER REPRESENTATION OF THE SMALLPOX 9 P GODDESS HINDOO DRAMATIC RELIGIOUS d

From an Antient Oriental Drawing

by musicians with drams, who are supplicating the pity of the furious deity. Behind the goddess, on the right, there advances a beay of smiling young women, who are carrying gracefully on their heads baskets with thanksgiving offerings, in gratitude for their lives and their beauty having been spared. There is, besides, a little boy with a bell at his girdle, who seems to be conveying something from the right arm of the goddess. This action may probably be emblematic of inoculation. In a country where every thought, word and Before her is a band of infles, the rays, issue from the bodies of the others, to indicate infection. On the left there is a group of men with spotted bodies, inflicted with the malady; bells are hung at their cinctures, and a few of them wave in their hands black feathers. They are preceded Two of them wear grinning red masks, carry black shields, and brandish naked scimitars. (Moore.) deed are mere repetitions of those of their progenitors, a composition like this bears the stamp of great antiquity. The goddess stands with two uplifted crooked daggers, threatening to strike on the right and left.

water, and applies it to the wound, fixing it on with a slight bandage, and ordering it to remain on for six hours without being moved; then the bandage to be taken off, and the pledget to remain until it falls off itself." (During the time this operation lasts, he does not cease to repeat certain passages from a sacred book, stated by the Brahmins to be three thousand, three hundred and sixty-seven years old.)

"The cotton, which he preserves in a double calico rag, is saturated with matter from the inoculated pustules of the preceding year; for they never inoculate with fresh matter, nor with matter from the disease caught in the natural way, however distinct and mild the species . . . . Early on the morning succeeding the operation, four collons (an earthen pot containing about two gallons) of cold water are ordered to be thrown over the patient, from the head downwards, and to be repeated every morning and evening until the fever comes on (which usually is about the close of the sixth day from the inoculation), then to desist until the appearance of the eruptions (which commonly happens at the close of the third complete day from the commencement of the fever), and then to pursue the cold bathing as before through the course of the disease, and until the scabs of the pustules drop off. They are ordered to open all the pustules with a fine sharppointed thorn as soon as they begin to change their colour, and whilst the matter continues in a fluid state. Confinement to the house is absolutely forbidden, and the inoculated are ordered to be exposed to every air that blows, and the utmost indulgence they are allowed when the fever comes on, is to be laid upon a mat at the door; but, in fact, the eruptive fever is generally so inconsiderable and trifling as very seldom to require this indulgence. Their regimen is ordered to consist of plantains, sugar-canes, water-melons, rice, gruel made of white poppy-seeds and cold water, or thin rice gruel for their ordinary drink. These instructions being given, and an injunction laid on the patients to make a thanksgiving, Poojah, or offering to the goddess on

their recovery, the operator takes his fee, which from the poor is a *pund of cowries*, equal to about a penny sterling, and goes on to another door down one side of the street, and up on the other; and is thus employed from morning to night, inoculating sometimes eight or ten in a house."

Although it is said by some that the practice was introduced from India about 200 B.C., China has often been referred to as being the birthplace of inoculation. This, however, is now disputed, and doubt is cast upon it, owing to difficulty in identifying the ideograph or Chinese written character signifying the Inoculation name of the disease. Recent investiin China gators are of the opinion that the word "smallpox" in China does not date earlier than the fourteenth century. There is a reference, however, in an antient Chinese work to an ambassador to the Court in A.D. 561, of whom it is said "he had just passed through the feverish disease, and his face was covered with scars," but this may or may not have been smallpox. In the year 1631, it was stated by Wylie that "smallpox has engaged the attention of the Chinese from near the commencement of the Christian era, and inoculation has been practised among them for a thousand years or more." He bases this statement, apparently, on a Chinese treatise on pock spots, said to have been published in 1323 and republished in 1542, but we have not been able to trace this work for verification.

The most reliable evidence of the antiquity of the practice of inoculation in China is that given by François Xavier d'Entrecolles, who was a Jesuit missionary in China in the seventeenth century. He states definitely, in a letter written from Peking in May,

1726, that the practice was known in China for a century before that date, and quotes an extract from the works of a Chinese physician who lived in the Ming dynasty, ca. 1626, who mentions the practice, but says that as everyone

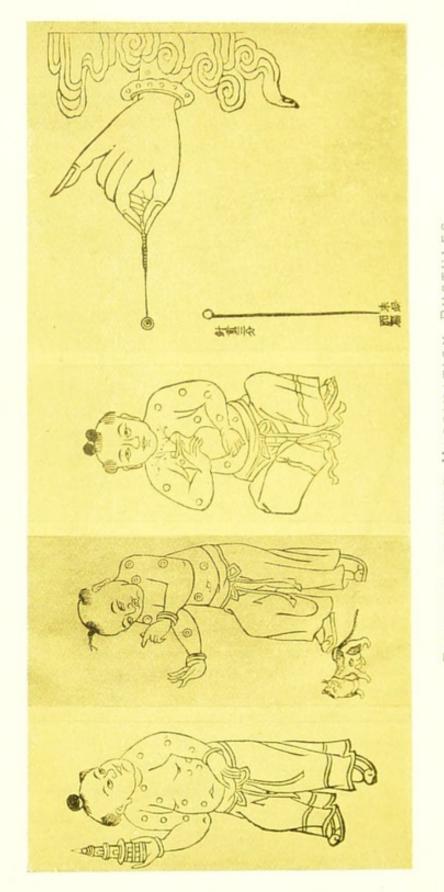
must necessarily have smallpox once in their lives, it was better to let it be contracted naturally.

D'Entrecolles states, concerning the Chinese phrase for smallpox inoculation, "tchung-teou," meaning "tchung" to sow, "tcou" smallpox, that the latter word also means "eating peas," and that the Chinese probably gave this name to smallpox on account of the similarity of the pustules to peas.

According to a recipe given to the missionary by a Court physician in 1726, the Chinese placed the dried matter of the smallpox pustule in a vase, which they very carefully sealed. They The Chinese method in 1726 stated that "if kept in this way, the matter would retain its virulence for several years, but that if the vase had the smallest opening it lost its virulence in twenty days. The method of inoculation was to take four scales, if small, or two, if large, and place musk between them, a little more than a grain in weight; place all in a piece of cotton, and insert in the nostril. In the case of a boy, place in the right nostril, and of a girl, in the left. The smallpox virus must be taken from young children, between the ages of one and seven."

If it were necessary to resort to the use of recent pustules, they were exposed to the steam of an infusion of the herb scorzonera and liquorice, in order to correct "the acrimony of the matter." Sometimes they used scales, previously dried and powdered, then made into a paste, the whole being wrapped up in cotton wool, and introduced into the patient's nostrils. This often set up a troublesome inflammation, and even if this did not take place, the inhalation into the lungs often produced the disease itself.

D'Entrecolles further states that the Emperor of China sent physicians from Peking, in 1724, to Tartary, the inhabitants of which country were suffering from an epidemic of smallpox, in order to inoculate the children against the disease. We are assured that the operations they performed were successful, a fact which seems to be corroborated by the statement



FIGURES SHOWING VACCINATION PUSTULES
From a Chinese work on Vaccination

that the physicians returned to Peking laden with presents of horses, skins, etc., presented to them by the Tartars in payment for their services.

Kirkpatrick, who also describes the Chinese method of inoculation, gives a slightly different account. He states that, instead of using the dried scales, a small piece of cotton was dipped into the fresh and fluid matter of the pustules, account and immediately introduced into the nose. Apparently, therefore, the Chinese employed both the dried and fluid variolous matter, but the method of introduction through the nose appears to be peculiar to the Chinese.

In Tibet, inoculation is said to have been practised from antient times, the method employed being to dip a bundle of needles in a solution of the pock virus and the dried crusts in water, and then to prick the arm with the same.

In Siam a method of inoculation similar to that employed in China, whence it was probably introduced, is practised. The pus is taken from the pustules, and blown into the nostrils, and this is claimed to protect the individual thus inoculated against an attack of the disease.

The actual period of the first outbreak of smallpox in Europe was probably about the latter part of the sixth century. It appears to have travelled west through Arabia, Ethiopia and the neighbouring countries, and was brought of smallpox of smallpox apparently unknown to the Greeks and Romans, and, according to antient historians, does not appear to have attacked civilised nations engaged in commerce or wars in foreign countries, before the latter end of the sixth, or the beginning of the

The earliest definite statements concerning the disease come to us from Arabia, and, according to an Arab manuscript in the library at Leyden, the first

seventh, century.

record of smallpox dates from A.D. 572, the year of Mohammed's birth. From the following passages in the Chronicle of Bishop Marius, who died in A.D. 590, it might, however, be inferred that smallpox dates from a slightly earlier period than that indicated in the Leyden manuscript:—

"In 570 a powerful scourge with flow from the abdomen and pox spread extensively over Italy and France; and oxen in the mentioned countries were . . . ."

"In 571 an abominable infirmity and glanders, which is its name, and pustules, killed innumerable people in the above-mentioned countries."

There is further evidence of its appearance among the Abyssinian army of Abraha, at the siege of Mecca, in what was known as the Elephant War of A.D. 569 or 571.

Referring to this, Tabari, one of the most reliable of the Arab historians, states: "It has been told to us by Ibn Humaid, after Salima, after Ibn Ischâg, to whom Ja'gûb b. Otha b. Mughira b. Achnas related that one had said to him, that in that year the smallpoc appeared for the first time in Arabia, and also the bitter herbs, rue, colocynth (and another)."

He then proceeds to relate the following interesting legend as to the cause of the disease:—

"Thereupon came the birds from the sea in flocks, every one with three stones, in the claws two and in the beak one, and threw the stones upon them. Wherever one of these stones struck, there arose an evil wound, and pustules all over. At that time the smallpox first appeared and the bitter trees. The stones undid them wholly. Thereafter God sent a torrent which carried them away and swept them into the sea. But Abraha and the remnant of his men fled; he himself lost one limb after another."

In a former passage the calamity of Abraha is thus described: "But Abraha was smitten with a heavy

stroke; as they brought him along in the retreat his limbs fell off piece by piece, and as often as a piece fell off, matter and blood came forth."

To illustrate this account by Tabari, his recent editor, Nöldeke, cites the following from an anti-Mohammedan poem: "Sixty thousand returned not to their homes, nor did their sick continue in life after their return." One of the elephants that dared to enter the sacred region is said to have been also wounded and afflicted by the smallpox.

"In this narrative of Abraha's disaster," says Nöldeke, "there is a mixture of natural causation and of purely fabulous miracle; a real and sufficient account of the Abyssinian leader's discomfiture, namely an outbreak of smallpox, had been blended with legendary tales. That the disease was smallpox is made probable by the continuity of the Arabic name. Rhazes, under the same name, later described the symptoms, pathology and treatment of what was unquestionably the small-pox afterwards familiar in Western Europe."

It is stated by another historian that smallpox broke out on the sacking of Alexandria by the Arabs in A.D. 640; thence it spread, by means of the pilgrims and commerce, through Egypt, Palestine, Syria and Persia, and is said to have broken out along the coast of North Africa. In the commencement of the eighth century it was known in Mauretania, and thence crossed the Mediterranean into Italy. It was also about this period that the Arabs and Moors introduced it into Spain, when they established themselves at Cordova. Afterwards it passed to Portugal, Navarre, Languedoc and Guienne, whence it was carried into Western and Northern Europe.

The earliest physician to describe smallpox was Ahrun, an Egyptian by birth, and a Christian priest, who lived at Alexandria under Heraclius (A.D. 610-641). He wrote a work on physic in thirty books, now lost, entitled "Pandectae Medicinae," in which he is said to have described the symptoms of smallpox and its

eruption, and to have distinguished the milder from the dangerous variety. This work, originally written in Greek, was translated into Syriac by Gosius, about A.D. 680, and Maserjawaih, a Jewish physician of Bassora, translated it into Arabic, about A.D. 683, with the addition of some observations of his own as to the treatment of diseases of the eyes proceeding from smallpox.

The next to notice the disease was George, physician to Almangar, who was a great patron of learning. In a work written about A.D. 795 he describes smallpox and its symptoms.

The effects of smallpox are also noticed by John, a son of Mesue, a Syrian by birth, who was connected with the medical school of Baghdad, formed under the protection of Haroun Al Raschid, to whom he was physician. He advises, in his course of treatment, that "the body, if necessary, should be kept open until the seventh day."

Isaac Johannitius is the next physician to allude to smallpox. He recommends bleeding, and observes that the body should be restrained for three weeks.

The first complete treatise on the disease was written by Rhazes, about A.D. 920; originally written in Syriac, this work was translated into Greek and then into Latin.

Smallpox in Syriac was termed "chaspe," which was translated into Greek as  $\text{E}\pi\phi\lambda\sigma\gamma\delta\bar{\omega}$ . The Latin translator first termed it "Incendium." The word "variolæ" is derived from the Hebrew DD, meaning a spot or speck. Hence the Latin "varus" or "variola," the Italian "vajolo," the French "vérole," and the English "smallpox."

Rhazes describes the signs, characteristic symptoms and remedies for the disease, but the latter he borrows chiefly from his predecessor Ahrun.

The first allusion to smallpox in England is that made in the Anglo-Saxon manuscript, "Medicinale

Anglicum," which is said to have been written in the early part of the tenth century. In one of the leechdoms there is an allusion to the "pockes," the plural of a word which signifies "a pustule." On the appearance of the disease, bleeding is recommended, to be followed by the following treatment:—

"Against pockes: very much shall one let blood, and drink a bowlful of melted butter; if they (the pustules) strike out, one shall dig each with a thorn, and then drop one-year alder-drink in, then they will not be seen."

This last instruction, evidently intended to prevent pitting, clearly identifies the disease.

In Egypt, inoculation for smallpox is said to have been practised in the thirteenth century. Matty states that the Mamelukes introduced it at the time of the Crusades, and the conquering Arabs carried it to other parts of Africa, especially to the countries bordering the Red Sea. The slave merchants who brought the Mamelukes to Alexandria, whence they were taken to Cairo and sold to Saladin, probably played their part in spreading the knowledge of inoculation in the south of Egypt and adjacent countries. The method, however, is said not to have been largely favoured by strict Mohammedans.

A further allusion in early English medical literature to smallpox is made by John of Gaddesdon in the "Rosa Anglica," which was written between 1305 and 1314. He devotes a chapter to "De variolis (et morbilis)," but this does not appear to possess much originality, and is distinctly borrowed from the early Arab writers.

Sydenham was the first great English physician to make a study of the disease, and he advised the use of bleeding, and directed that the patient should be taken out of bed and exposed to the cool air of his room during the time the fever is at its highest.



DR. THOMAS DIMSDALE

(AFTERWARDS BARON DIMSDALE)

Born 1712 Died 1800

#### CHAPTER II

SMALLPOX INOCULATION IN EUROPE FROM THE SEVENTEENTH TO THE EIGHTEENTH CENTURY

From Asia and Africa the practice of smallpox inoculation passed into Europe by way of Greece and the coasts of the Bosphorus to Constantinople, where it was known at the latter part of the seventeenth century.

In 1701, when a serious epidemic of the disease broke out in that city, Timoni and Pylarini, two medical men who were there at the time, and who were aware of the practice, recommended the employment of inoculation.

Timoni first saw inoculation practised in Constantinople by two women, and describes the operation in detail.

"The Circassians, Georgians and other Asiaticks," he states, "have introduced this practice of procuring the smallpox by a sort of inoculation for about the space of forty years, among the Turks and others at Constantinople. They that have this inoculation practised upon them are Inoculation by women in subject to very slight symptoms, some Constantinople being scarce sensible that they are ill or sick. The method of the operation is thus: Choice being made of a proper contagion, the matter of the pustules is to be communicated to the person proposed to take the infection, whence it has metaphorically the name of insition or inoculation.

"For this purpose they make choice of some boy or young lad, of a sound healthy temperament, that is seized with the common smallpox (of the distinct, not flux sort), on the twelfth or thirteenth day from the beginning of his sickness; they, with a needle, prick the tubercles (chiefly those on the shins and hands), and press out the matter coming from them into some convenient vessel or glass, or the like, to receive it. It is convenient to wash and clean the vessel first

with warm water. A convenient quantity of this matter being thus collected is to be stopped close and kept warm in the bosom of the person that carries it, and as soon as may be brought to the place of the future expecting patient. The patient, therefore, being in a warm chamber, the operator is to make several little wounds with a needle in one, two or more places of the skin until some drops of blood follow, and immediately drop out some drops of the matter in the glass and mix it well Their method described with the blood issuing out; one drop of the matter is sufficient for each place prick'd. These punctures are made indifferently in any of the fleshy parts, but succeed best in the muscles of the arm or radius. The needle is to be a three-edg'd surgeon's needle; it may likewise be performed with a lancet. The custom is to run the needle transverse and rip up the skin a little, that there may be a convenient dividing of the part, and the mixing of the matter with the blood more easily perform'd; which is done either with a blunt stile or an ear-picker. The wound is covered with a half a walnut shell or the like concave vessel and bound over, that the matter may not be rubb'd off by the garments, which is all removed in a few hours. The patient is to take care of his diet. In this place the custom is to abstain wholly from flesh and broth for twenty or twenty-five This operation is performed either in the days. beginning of the winter or in the spring."

Another method was described by Pylarini shortly afterwards, which he saw practised in Turkey by an old woman on the four sons of a Greek nobleman. It consisted in inserting the variolous matter into a number of punctures made on the forehead, cheeks, chin and wrist.

As stated by Timoni, the practice of inoculation for smallpox was introduced into Turkey from Circassia, where it was said to have been employed for a considerable period previously. The Danes appear to have practised inoculation against smallpox from the seventeenth century, and, according to Bartholin, writing in Copenhagen, in 1673, "the practice was a common one in Denmark." In 1758, two inoculation houses were established by the King in the capital, and, in 1760, one of the royal princes was inoculated, with success.

In 1711, De La Motraye says that he saw the operation performed on a Circassian girl, four or five years old. The girl after being purged with dried fruits, was carried to a boy about three years old, who had caught the natural smallpox, and whose pocks were ripe. An old woman performed the operation; for women of advanced age exercised the practice of physic in Circassia. The manner of inoculating the disease he describes as follows:—

"She took three needles fastened together, and prick'd first the pit of the stomach; secondly, directly over the heart; thirdly, the navel; fourthly, the right wrist; and, fifthly, the ankle of the left foot, till the blood came. At the same time, she took some matter from the pocks of the sick person, and applied it to the bleeding part, which Circassian she covered, first with angelica leaves method dri'd, and after with some of the youngest lamb-skins; and having bound them all well on, the mother wrapped her daughter up in one of the skin coverings, which, I have observed, compose the Circassian beds, and carried her thus packed up in her arms to her own home; where (as they told me) she was to continue to be kept warm, eat only a sort of pap made of cummin flower, with two-thirds water and one-third sheep's milk, without either flesh or fish, and drink a sort of tisan, made with angelica, bugloss roots and licorish, which are all very common throughout this country, and they assured me that with this precaution and regimen, the smallpox generally came out very favourably in five or six days."

Kennedy, an English surgeon, in an essay on external remedies, written in 1715, describes the method of ingrafting the smallpox, as practised in the Peloponnesus, now called the Morea, which he states "at this present time is very much used both in Turkey and in Persia, where they give it in order to prevent its more dismal effects by the early knowledge of its coming, as also probably to prevent their being troubled with it a second time.

"The Persians use the pock and matter dried into powder, which they take inwardly, but in Turkey, more particularly in Constantinople, they first take a fresh and kindly pock from someone ill of this distemper, and having made scarifications upon the forehead, wrists and legs, or extremities, the matter of the pock is laid upon the foresaid incision, being bound on there for eight or ten days together; at the end of which time, the usual symptoms begin to appear, and the distemper comes forward as if naturally taken ill, though in a more kindly manner and not near the number of pox. During this time, or from the scarifications being made, the patient is Persian closely confined to his room, so as in and Turkish no way to be exposed to the air; and methods compared the regimen or diet during the whole time of confinement is altogether from flesh, and one kept mostly to water-gruel. By this very regular way of living the distemper, or pock, comes out more kindly and less dangerous, since it is very probable that most of the malignity is increased and augmented by the irregularities committed in their diet or their manner of living some few days before the malady appearswhich, when it comes naturally, cannot be so well seen or known how to prevent its worst symptoms, so as when given after this manner."

In 1726, Dr. Russell, a physician then residing in Aleppo, records the fact that he met with an old Bedouin servant, who was familiar with the practice of inoculation. This, she asserted, was done with a

needle, and she herself had received the disease in that manner when a child. She informed Dr. Russell the practice was well known to the Arabs, and that they termed it "buying to the Arabs the smallpox." On prosecuting further enquiries into the subject, Russell found that the practice of inoculation had been one of long standing among the Arabs, and even those over seventy years of age remembered to have heard of the custom among their ancestors.

Their method of operating was to make several punctures in some fleshy part with a needle which had been charged with variolous matter taken from a favourable kind of pock. They used no preparatory treatment, and the disease communicated in this way, they affirmed, was always slight. The origin of the term "buying the smallpox," is somewhat curious, and it is said to have taken rise from the following ceremony:—

"The child to be inoculated carries a few raisins, dates, sugar plums, or such like; and showing them to the child from whom the matter is to be taken, asks how many pocks he will give in exchange. The bargain being made, The Arabian they proceed to the operation. When the parties are too young to speak for themselves, the bargain is made by the mothers. This ceremony, which is still practised, points out a reason for the name given to inoculation by the Arabs; but by what I could learn among the women, it is not regarded as indispensably necessary to the success of the operation, and is, in fact, often omitted."

The same custom was found to prevail among the Eastern Arabs, not only at Baghdad and Mousul, but in Bassora. At Mousul the appearance of smallpox was announced by the public crier, so that those who wished might have their children inoculated.

Various races appear to have inoculated in different parts of the body. Thus the Arabs usually chose the hand, between the thumb and first finger, the Georgians the forearm, and the Armenians both thighs.

In Armenia the Turkoman tribe, as well as the Armenian Christians, are said to have practised inoculation for a period beyond the memory of man, but they are unable to give any account of its first introduction among them. Along the coast of Syria and Palestine, and also at Damascus, inoculation has long been practised, and in the Castravan mountains it is known to, and employed by, the Drusi as well as the Christians.

In Tripoli, Tunis and Algiers, the practice of inoculation was described by Cassim Aga, ambassador in England in 1728. He states that the method employed by those who wished to have their children inoculated was to carry them to one that was afflicted with the smallpox at the time when the pustules had come to full maturity. "Then the surgeon makes an incision on the back of the hand, between the thumb and forefinger, and puts a little of the Tripoli, matter, squeezed out of one of the Tunis, largest and fullest pustules, into the Algiers wound. This done, the child's hand is wrapped up in a handkerchief to keep it from the air, and he is left to his liberty till the fever arising confines him to his bed, which commonly happens at the end of three or four days. After that, by God's permission, a few pustules of the smallpox break out upon the child. All this I can confirm by the domestic proof, for my father carried four brothers and three sisters to the house of a girl that lay ill of the smallpox, and had us all inoculated the same day." He concludes by stating that "this practice is withall so antient in the kingdoms of Tripoli, Tunis and Algiers, that nobody remembers its first rise, and it is practised generally, not only by the inhabitants of the towns, but also by the wild Arabs."

In Western Europe, according to Schwenk, inoculation was practised in Meurs, in France, and also in Cleves, as early as 1712. In 1707, Boyer records that it was known to the peasants in Auvergne and Perigord. In 1752, attention was again called to the matter, by Butini of Hurope Montpelier, and by De La Condamine.

Three years later, Tergot inoculated a child four years of age, and one M. Chastellux, aged twenty-four, also submitted to the operation.

A serious and fatal outbreak of smallpox in Paris in 1763 was attributed partly to inoculation, with the result that the practice was prohibited by the Government. But, five years later, on the recommendation of the medical faculties, this decree was rescinded, and during the latter part of the eighteenth century it was again commonly practised in Paris.

A curious sidelight which shows how the burning questions of the time are reflected even on the fashions of the day, is related in the life of the famous Mlle. Rose Bertin, who was milliner to Marie Antoinette. Mlle. Bertin owed her

European reputation to her taste and

the ingenuity with which she utilised current events to vary her fashionable designs. In the latter part of the eighteenth century the elaborate coiffeurs affected by ladies of the period were of the most extraordinary description. One of these, known as the "pouf á l'Inoculation," was introduced by Mlle. Rose Bertin to coincide with the inoculation of the young king, Louis XVI, which took place on June 18, 1774. For some time after this interesting event every lady who wished to be in the fashion wore in her hair a miniature model of the rising sun, and a heavily laden olive tree, round whose trunk was entwined a serpent, supporting a club, wreathed with flowers. This device was supposed to symbolise the power of medicine, represented by the snake, to overcome the horrors of smallpox; the rising sun was supposed to symbolise the royal patient, who was a descendant of "le roi soleil," while the olive tree represented the peace and joy of his loving subjects at the successful issue of the operation.

In Germany, inoculation appears to have been first introduced by Maitland in 1724, who journeyed to Hanover to operate on Prince Frederick of Prussia, and afterwards on the family of a German baron, consisting of eight children. The practice, however, made little progress until 1768, when, after the inoculation of some members of the Imperial family, it became more general. In Berlin it fell into disfavour owing to several deaths from smallpox being attributed to it, and it was not until the end of the eighteenth century that attention was again called to the matter.

In Italy, according to De La Condamine, inoculation was known and secretly practised by the Neapolitans, from an early period. He states that it was frequently performed by nurses, who were in the habit of inoculating the infants entrusted to their care, without even the knowledge of their parents, by rubbing the palm of the hand with variolous matter recently taken from a smallpox pustule.

During the great epidemic of smallpox in 1754 the practice was introduced into Rome by Peverini, but he encountered considerable opposition, and it was not until some years afterwards that it became common in Italy.

Tronchin is said to have been the first to introduce the practice of inoculation into Holland in 1758, when he performed it on one of his sons; while in Switzerland a lady living in Lausanne inoculated her own child in 1751, and her example was speedily followed by others.

Mead, writing in 1765, with reference to inoculation, states: "It was the invention of the Circassians, the women of which country are said to excel in beauty, upon which account it is very common, especially among the poorer sorts, to sell young girls for slaves to be carried away into

the neighbouring parts. When, therefore, it was observed that they who were seized with this distemper (smallpox) were in less danger, both of their beauty and their life, the younger they were, they contrived this way of infecting the body so that the merchandise might bring the greater profit."

In Russia, owing to the enthusiasm and interest taken in the subject by the Empress Catherine II, Dr. Dimsdale, a London practitioner, who had become recognised as a specialist in inoculation, was sent for to introduce the practice into that country. He was summoned to St. Petersburg in 1768, In Russia and first performed the operation on two boys of about fourteen years of age. The matter for their inoculation had been taken from a child of the poorer classes in the suburbs of St. Petersburg, who was said to be "pretty full of a distinct kind of smallpox." These were followed by four more youths, and a young maidservant, for further trial, and a case of natural smallpox with the eruption in a suitable stage for the purpose was chosen.

These cases proving satisfactory, the Empress herself determined to undergo inoculation, and a child, on whom smallpox had just begun to appear, was selected and taken to the Palace. The operation was performed secretly, and was apparently unattended by any untoward results, as the lady is said to have taken part in every amusement "with her usual affability, without showing the least token of uneasiness or concern, and constantly dined at the same table with the nobility."

Shortly afterwards Dimsdale inoculated the Grand Duke, and for these royal services he was made a Baron of the Russian Empire, appointed Councillor of State, and Physician to Her Imperial Majesty. He was also awarded the sum of one thousand pounds in addition to an annuity of five hundred pounds.

At the request of the Empress, Dr. Dimsdale proceeded to Moscow, where many were desirous of being inoculated.

With respect to his method, he restricted himself to inoculating by means of a lancet, the point of which was slightly dipped in variolous matter Dimsdale's taken during the eruptive fever. The method lancet was introduced obliquely beneath the superficial skin, making a very tiny puncture. If there were no patients in a proper state to yield the variolous matter, dried lymph was employed. The lancet or a plate of glass or gold was charged with the matter in a fluid state, which was then allowed to dry. When required for use it was held over the steam of boiling water, or a small quantity of water, barely sufficient for dilution, was added to it, and the matter thus moistened was used for the purpose of inoculation.

Some idea of the terrible mortality from smallpox in Europe at the end of the eighteenth century may be gathered from the fact that the average annual deathrate throughout the Continent was two hundred and ten per thousand. During epidemics this was even higher, and in Russia in one year no less than two million persons perished from the disease.

In America, the practice of inoculation appears to have been first suggested at the time of the great smallpox epidemic, in 1721, by Cotton Mather, a clergyman. He was bitterly attacked, however, for recommending such a treatment, insomuch that his life was at one time in danger. In spite of this, he inoculated his son with success, and about the same time Dr. Zabdiel Boylston inoculated one of his children and two of his negro servants.

During the following six months he inoculated two hundred and forty-four persons, with the result, it is stated, that in six there was no effect at all, while six are said to have died in consequence of the inoculation. Boylston describes his method as follows:—

"Take your Medicine or Pus from the ripe pustules of the smallpox of the distinct kind, either from those in the natural way or from the inoculated sort, provided that the persons be otherwise healthy and the matter good. Then take a fine cut sharp tooth pick (which will not put the person in any fear as a Lancet will do in many) and open the Pock on one side and press the boil and scoop the matter on your quill and so on."

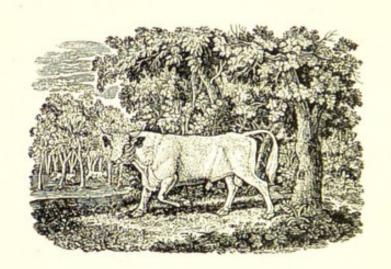
Boylston's experiments excited a great deal of opposition in America, and the practice fell into disrepute after a public meeting of medical practitioners had been called in Boston, where the practice was deprecated as causing the death of many persons, and it was contended that the operation was likely to prove of most dangerous consequences to those who submitted to it. Inoculation therefore made but little progress in America until 1764, when an epidemic of smallpox broke out in Boston, with the result that three thousand persons were successfully operated on.

In South America, the practice of inoculation was introduced by a Portuguese Carmelite missionary. He appeared to have had no practical experience of it, but was a firm believer in its efficacy, and in 1728, when smallpox was ravaging the neighbourhood of Para, he performed the operation on a number of people with most satisfactory results. His example was successfully followed by another missionary at Rio Negro.

In Mexico, which was ravaged by epidemics of smallpox during the sixteenth century, inoculation was introduced in 1797, at the time of an epidemic in the environs of Mexico City. According
to Humboldt, in his "Political Essay on the Kingdom of New Spain," 1808, in the capital of the bishopric of Michoachan, "out of 6,800 people inoculated only 170 died. Several individuals, especially among the clergy, displayed very praiseworthy patriotism in arresting the progress of the

disease by inoculation. There were then inoculated in the kingdom between fifty and sixty thousand individuals."

In January, 1804, vaccination was introduced into Mexico from North America, and made rapid progress. "If the vaccine inoculation," says Humboldt, "or even the ordinary inoculation, had been known in the New World in the sixteenth century several millions of Indians would not have perished victims to smallpox." For to this disease the great diminution in the number of Indians in California is to be ascribed.



# CHAPTER III

# INOCULATION IN THE BRITISH ISLES

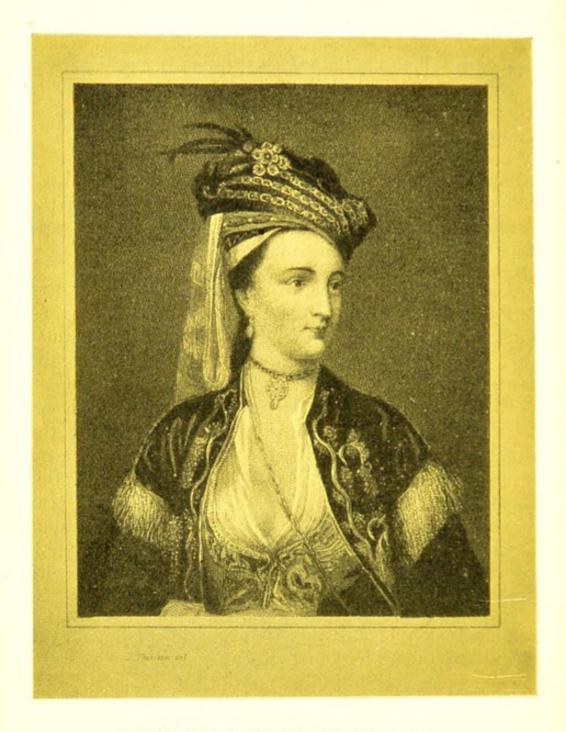
From well-authenticated statements it would appear that a method of inoculation for smallpox, similar to that employed in the East, was known and practised in the British Isles for "Buying the aconsiderable period. How, and by whom, it was introduced into Britain we have not been able to trace, but apparently as early as the seventeenth century it was practised in Wales, and was called "buying the smallpox."

According to Williams, writing in 1722, the peasantry in Pembrokeshire had carried on the custom from time immemorial, by rubbing the matter taken from pustules that were ripe on several parts of the skin of the arm, or pricking the parts with pins that had been first infected with the matter. The writer declares, "I cannot hear of one instance of their having the smallpox a second time." He further states, "There is a married woman in the neighbourhood of this place who practised it on her daughter about a year and a half ago, by which means she had the smallpox favourably, and is now in perfect health, notwithstanding she has, ever since, without reserve, conversed with such as have had that distemper this last summer."

School-boys in the district are said to have even inoculated themselves in this way.

Further evidence of the practice in Wales is recorded by a surgeon named Wright, of Haverfordwest. Writing in 1722, he refers to it as "a very antient custom, commonly called 'buying the smallpox,' which I find to be a common and welsh custom practice, and of very long standing.

In two large villages near Milford Haven, named St. Ishmaels and Marloes, the oldest inhabitants declared it had been a common practice with them time out of mind, and one, William Allen, who was at that



LADY MARY WORTLEY MONTAGU
Daughter of Evelyn, Earl of Kingston

Born 1689 Died 1762

time ninety years of age, stated that it had been known and used throughout his life, and that he very well remembered his mother telling him it had been commonly done all her time, and that she got the smallpox that way,"

There is evidence that in the Highlands of Scotland a method of smallpox inoculation was known about the same period. It was performed by charging worsted threads with the variolous matter, and tying them round the wrists. In the Island of St. Kilda it was customary to rub the matter on the skin of the elbow joint until it was absorbed.

In Ireland, the first record of the practice appears to be in 1723, when a medical practitioner in Dublin introduced it. During that year and the three following, twenty-five persons in all were inoculated, three of whom are said to have succumbed to the disease, and consequently the practice fell into disuse.

In England, there is no credible record of the practice before its introduction by Lady Mary Wortley Montagu, the wife of the British Ambassador to the Ottoman Court in 1717. The accounts of the practice in Turkey, which had been published in the Transactions of the Royal Society, by Timoni and Pylarini, in 1713, had caused but little interest, and it was only through the persistent efforts and enthusiasm of Lady Mary, who, to prove its efficacy, had her son inoculated, that serious attention was again directed to the matter in England.

The famous letter which she wrote to her friend, Miss Sarah Chiswell, in 1717, in which she expressed her determination to persuade the physicians of London to practise inoculation, is worthy of quotation in full:—

"Apropos of distempers," she wrote, "I am going to tell you a thing that I am sure will make you wish yourself here. The smallpox, so fatal and so general amongst us, is here entirely harmless by the invention of *ingrafting*, which is the term they give it. There is a set of old women who make it their business to perform the operation every autumn in the month of September, when the great heat is abated. People send to one another to know if any of their family has a mind to have the smallpox. They make parties for this purpose, and when they are met (commonly fifteen or sixteen together), the old woman comes with a nutshell full of the matter of the best sort of smallpox, and asks what veins you please to have opened. She immediately rips open that you offer to her with a large needle (which gives you no more pain than a common scratch), and puts into the vein as much venom as can lie upon the head of her needle, and after binds up the little wound with a hollow bit of shell; and in this manner opens four or five veins. The Grecians have commonly the superstition of opening one in the middle of the forehead, in each arm, and on the breast, to mark the sign of the cross; but this has a very ill effect, all these wounds leaving little scars, and is not done by those that are not superstitious, who choose to have them in the legs, or that part of the arm that is concealed. The children or young patients play together all the rest of the day, and are in perfect health to the eighth. Then the fever begins to seize them, and they keep their beds two days, very seldom three. They have very rarely above twenty or thirty in their faces, which never mark; and in eight days' time they are as well as before their illness. Where they are wounded, there remain running sores during the distemper, which I don't doubt is a great relief to it. Every year thousands undergo this operation; and the French Ambassador says pleasantly that they take the smallpox here by way of diversion, as they take the waters in other countries. There is no example of any one that has died in it, and you may believe I am very well satisfied of the safety of the experiment, since I intend to try it on my dear little son. I am patriot enough to take pains to bring this useful invention into fashion in England; and I should not fail to write to some of our doctors very particularly about it, if I knew any one of them that I thought had virtue enough to destroy such a considerable branch of their revenue for the good of mankind. But that distemper is too beneficial to them not to expose to all their resentment the hardy wight that should undertake to put an end to it. Perhaps if I live to return, I may, however, have courage to war with them. Upon this occasion admire the heroism in the heart of your friend."

Lady Mary was not long before she carried her decision into practice, and persuaded Dr. Maitland, who was surgeon to the Embassy in Constantinople, to procure some variolous matter from a suitable subject and to obtain the services of a woman, who was experienced in the practice of inoculation, to use it. In March, 1717, the inoculator, who was an aged Greek woman of Pera, came to the Embassy to meet Maitland, who had the matter ready. In his account of the operation he says: "The good woman went to work so awkwardly and by the shaking of her hand put the child to so much torture with her blunt and rusty needle that I pitied his cries, and therefore inoculated the other arm with my own instrument with so little pain that he did not even complain of it." The disease followed in due course, with the result of over a hundred pustules.

Thus, for the first time, the Eastern method of inoculation was performed on a British subject, an innovation due to the courage of Lady Mary Wortley Montagu, who practically risked her son's life for the purpose.

Four years later, an essay, entitled "A Dissertation on the Method of Inoculating the Smallpox," was published by Dr. De Castro, who advocated arm-to-arm variolation. He recommended physicians to introduce the practice into England, as he found it had always been attended by success.

Shortly after this Dr. Harris delivered a lecture before the Royal College of Physicians in London, in which he described the Byzantine and Chinese methods of inoculation. He also called attention to the method then used at Aleppo of inoculating by means of a thread which had been dipped in the variolous matter, which had been used with success upon four children of the French Consul in that city.

Meanwhile, Lady Mary Wortley Montagu had not been idle, and still enthusiastically carried on her crusade. The inoculation of her son in Constantinople having been successful and attended by no ill effects, in April, 1721, she decided to have her baby girl, a child three months old, inoculated in the same way. She was staying in England at the time, and Dr. Maitland, who had been present at the inoculation of her son, being also in this country, consented to carry it out, and the operation was done in the presence of several of the Court physicians.

In the following year Maitland inoculated the son of Dr. Keith, with favourable results.

The subject excited considerable interest at the time throughout the country and was much commented upon, but the British public, ever conservative in adopting new customs, still regarded the practice with suspicion, and a certain amount of dread, and so for a time it made little progress.

In August, 1722, a suggestion was made to inoculate some criminals, then undergoing imprisonment in Newgate, with variolous matter, and those who submitted were promised a full pardon.

Experiments on criminals Several accepted the offer, and six men were accordingly inoculated by Maitland under the direction of Sir Hans Sloane, on August 9, 1722. Maitland's method of inoculation was to make an incision through the cutis, and apply pledgets

which had been steeped in the variolous matter from ripe pustules. None of the men suffered severely, and only sixty pustules appeared on the one on whom the inoculation produced the most effect. A seventh criminal, named Elizabeth Harrison, a girl of about eighteen years of age, was next experimented on by Dr. Mead, who used the Chinese method of inoculation. It was followed by a mild type of the disease, accompanied by severe pains in the head from the commencement of the eruption, but the girl made a good recovery.

During the next six months Maitland inoculated only eight persons, but Nettleton, a medical practitioner of Halifax, Yorkshire, who became an Inoculation enthusiastic believer in the practice, of forty individuals inoculated forty individuals in three in Yorkshire His method was to first months. prepare the patient by the administration of a course of aperients, emetics and occasional bleeding. When inoculating, he made two incisions, one in the arm, and one in the leg on the opposite side of the body, and dropped the variolous matter into them. With his later patients he employed another method, which consisted in impregnating cotton wool with the variolous pus, and applying it to the incision for twenty-four hours.

Towards the close of the year 1722, public attention was again drawn to the subject by the announcement that the Princess of Wales had ordered five charity children of the parish of Royal children St. James's to be inoculated. The inoculated results were successful, and this decided the Princess to have her two young children operated upon in the same way. Although a mild attack of the disease followed, no serious results of the operation occurred, and the practice, thus encouraged by royal favour, received a fresh impetus.

This, however, was soon checked by the announcement of the death of the Hon. William Spencer, and several other cases which terminated fatally from smallpox after inoculation.

Opposition to the practice now sprang up both from physicians and clergymen, who spoke and wrote against it, and a heated controversy speedily developed. The clergy declared the custom to be the outcome of

Opposition to the practice quackery, atheism and avarice, and one divine who preached against it, stigmatised it as "a dangerous and sinfull practice." Maitland, especially,

was taken to task in connection with the fatal results which had attended so many persons he had inoculated. To these criticisms the supporters of inoculation replied, and a vigorous discussion followed in the press and in the form of pamphlets published by exponents on both sides.

Notwithstanding this, however, the practice continued to make steady progress in England. Jurin, who published some letters on the subject at this time, stated that, in accordance with statistics, among children born, one in fourteen died in after life from smallpox if uninoculated, while of the inoculated persons only one out of ninety-nine succumbed to the disease. He qualified his recommendation by stating that care should be taken only to inoculate those "who were of good habit of body," and apparently free from any disease.

In 1746, an Inoculation Hospital was established in London, although prejudice still ran high against the practice. Patients, on leaving the hospital, it was said, were often abused and followed in the street by the anti-inoculators, and many had even to remain in the building until night, unable to leave on account of the danger of insult and assault in the streets.

In 1747, Dr. Mead, who was at that time at the zenith of his fame as a fashionable and popular physician, published an article in favour of the practice,

and, on behalf of the church, Dr. Maddox, then Bishop of Worcester, also become a powerful supporter of inoculation, and preached a sermon on the subject, which was published and attained considerable popularity.

At the beginning of the year 1754 public attention was aroused by the announcement that the Prince of Wales had been stricken down by smallpox, and, on the advice of the Prince Edward Court physicians, it had been decided to inoculate Prince Edward and Princess Augusta with variolous matter taken from the royal patient.

This aroused a fresh controversy on the vexed question, and, after some consideration, the following manifesto was published by the Royal College of Physicians in 1754:—

"The College, having been informed that false reports concerning the success of inoculation in England have been published in foreign countries, think proper to declare their sentiments in the following manner, viz.: That the arguments which at the commencement of this Manifesto by practice were urged against it have been of Physicians refuted by experience; that it is now held by the English in greater esteem, and practised among them more extensively than ever it was before, and that the College thinks it to be highly salutary to the human race."

In 1757, interest was again revived in the subject by the announcement of a new method of operation, discovered by Robert Sutton, an unqualified practitioner, who soon achieved considerable fame as a successful inoculator. Sutton lived at Debenham, Suffolk, and the success attending his inoculations soon spread throughout the country, insomuch that in the course of eleven years it is stated that he inoculated 2,514 individuals. His practice so increased that he trained his two sons, Robert and Daniel, to assist him,

and they eventually opened an Inoculation House near Ingatestone, in Essex, where patients became so numerous that it was difficult to accommodate them in the village.

Sutton claimed that by the use of certain medicines and treatment, he was enabled to keep the disease contracted after inoculation entirely under his control, and maintained that no fatal results had ever ensued from his method. The details of this he kept a profound secret, and, as his fame increased, so the envy of the physicians of the period was aroused, and every effort was made to try and find out the secret of his success. Samples of the Sutton's medicines he prescribed were with method difficulty obtained, and subjected to analysis both by physicians and chemists, and his patients were plied with all kinds of interrogations after they had passed from under his care, but all without avail. In the end he agreed to communicate his method to any practitioner at a distance away from where he lived, on condition that he received half the profits that accrued, and thus eventually his method became known.

Patients who desired to be inoculated by him were first kept on a strict dietary for a fortnight, and a certain powder together with a dose of purging salts, was administered during this time. His Dietetic method of inoculation, as given by and medicinal himself, was to take a lancet charged preparation for inoculation with the smallest possible quantity of the unripe, crude or watery matter from the pustules. and then insert it under the cuticle obliquely in the outer part of the arm, between the scarf and the true skin, barely sufficient to draw blood and not deeper than the sixteenth part of an inch. The raised skin was then pressed down by the finger without further application of plaster or bandages. He considered patting or daubing of the matter over the punctured place as unnecessary.

Dr. Dimsdale, who afterwards achieved fame as an inoculator in Russia, as already related, was one of the first to turn Sutton's method to account, and, with some slight alteration, he practised it with great success. Previously, he had applied a piece of thread which had been drawn through a ripe pustule, and well moistened with the matter, to an incision made in one or both arms, but this method he abandoned for one adapted from Sutton's. For nine Adopted by or ten days before the operation his Dr. Dimsdale patients were enjoined to abstain from all animal food and fermented liquor, and to live on a low diet. During this time they were dosed with a powder composed of eight grains of calomel, eight grains of compound powder of crab's claws, and one-eighth part of a grain of tartar emetic. Three doses of this powder were given, one at the commencement of the treatment, the second in three or four days, and the third about the eighth or ninth day.

In 1766, Burgess called attention to the necessity of preparing the patient, before inoculation, by means of purgatives.

The practice of direct inoculation, however, was still regarded with suspicion by the majority of people, owing to its uncertainty, and it gradually became evident that not only did it fail to exterminate the disease, but actually spread it, and in many cases smallpox was introduced by inoculation into towns which had been free from the natural disease.

There can be no doubt that inoculation lessened the virulence, and, to some extent, diminished the dangers of an attack of smallpox, but smallpox still continued, and, as no precautions against infection were taken, each case only served to Effects of inoculation spread the disease. One of Maitland's earliest cases, a child of the name of Mary Butt, is said to have infected six servants who had attended her; and in the report of a case recorded by Willan,

of a child whose parents kept a shop in a court consisting of about twenty houses, it is stated that the disease was contracted by seventeen persons who had frequented the shop within a fortnight of the child's recovery, and eight of them died from the disease.

Gradually the practice fell into disuse, and disappeared on the advent of vaccination, direct inoculation by smallpox matter being finally forbidden by Act of Parliament in 1840.



#### CHAPTER IV

## THE GENESIS OF VACCINATION

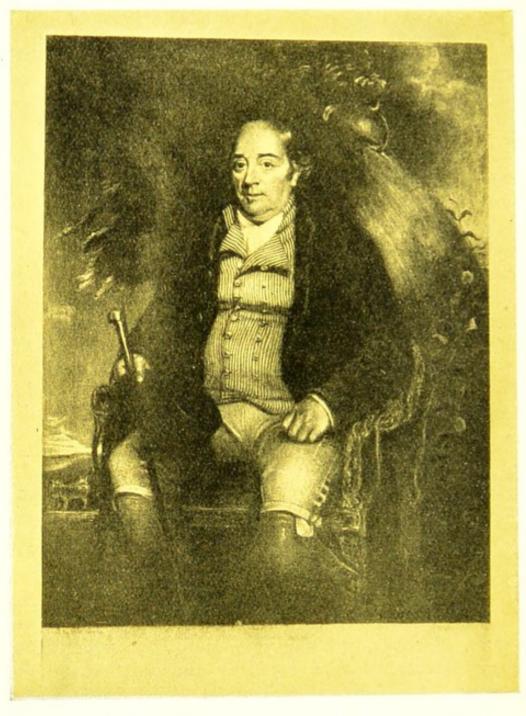
In studying the history of medicine one cannot fail to notice how much we owe to antient customs which have come down to us from traditions of the past, and how many so-called modern discoveries are but reintroductions of practices of remote antiquity.

Thus it was from the old traditions of ignorant cowherds and dairy-maids that the theory of vaccination of the human being with cowpox as a preventive of smallpox was evolved. From an unknown period farm hands, who had tradition had the care of cattle, had known of a disease among cows which was called "cowpox," and were aware that they were liable to contract the complaint from the animal, especially when milking. It had further been noticed that those who had had the cowpox were not susceptible to the dreaded smallpox, which was so prevalent in England a century or more ago.

Dr. Corlett states that in the time of Charles II, the court ladies and other devotees of fashion looked with envy upon the immunity enjoyed by some of the dairy-maids in Gloucestershire to the pitting of smallpox.

He relates the following curious story of the Duchess of Cleveland (1670), who, it is well known, was a favourite with the king, and celebrated for her great beauty. When joked by the courtiers on the possible loss of her position at court through the disfigurement of smallpox, she is said to have replied that she had nothing to fear, for she had had cowpox.

In Ireland, according to Barry, cowpox had been known as long as smallpox, and about 1750, an aged woman, eighty years of age, stated that she was certain that as long as she could remember the opinion had prevailed that people who had had the cowpox could



BENJAMIN JESTY
From the original oil painting

not take the smallpox, and that many purposely exposed themselves to the former, to protect themselves from smallpox.

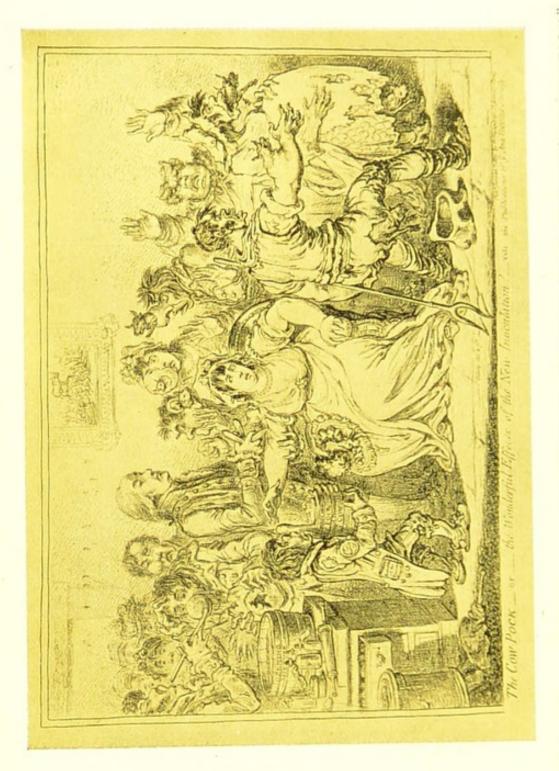
This tradition, however, does not appear to have been universal, and in some parts of the country it appears to have been unknown. Jenner believed that it arose as the result of smallpox inoculation, and that the failure in attempting to inoculate smallpox on those who had recently contracted cowpox gave rise to gossip among those who were employed in dairies, and laid the foundation of the popular tradition.

In 1769, Jobst Böse, a Government official in Germany, called attention to the fact that those who had suffered from cowpox, were believed to be protected from smallpox. He states: "I am reminded of the not unknown attacks of cowpox which were prevalent in this country, and to which to this day milkmaids are subject. In passing, I wish to remark that in this country those who have had the cowpox flatter themselves to be entirely free from all danger of getting smallpox, and assert, as I myself, to have heard this same statement made by entirely reliable persons."

The first record of the tradition being put into practical use is recorded in the papers of Mr. Nash, a medical practitioner who died in 1785, among which were found the following observations:—

"I never heard of one having the smallpox who ever had the cowpox. The cowpox certainly prevents a person from having the smallpox. I have now inoculated about sixty persons, who have been reported to have had the First practical use of the cowpox, and I believe at least forty tradition of them I could not infect with the variolous virus. The other twenty, or nearly that number, I think it is very reasonable to presume (as they were no judges), had not the real cowpox. It is not my own opinion only, but that of several other

<sup>\* &</sup>quot;General Conversations of Göttingen," Part 39, May 24, 1769



"THE COWPOX; OR, THE WONDERFUL EFFECTS OF THE NEW INOCULATION" From a caricature, 1802

medical gentlemen, that convinces me the cowpox is a prophylactick for the smallpox. My principal intention in publishing being to recommend to the world a method of inoculation that is far superior in my opinion (and I judge it from experience) to any yet made known; therefore I hope and trust, although I have no medical friend to enforce it upon the world, that they will give me so far credit for my assertions as to make the experiment, and then it will sufficiently introduce itself."

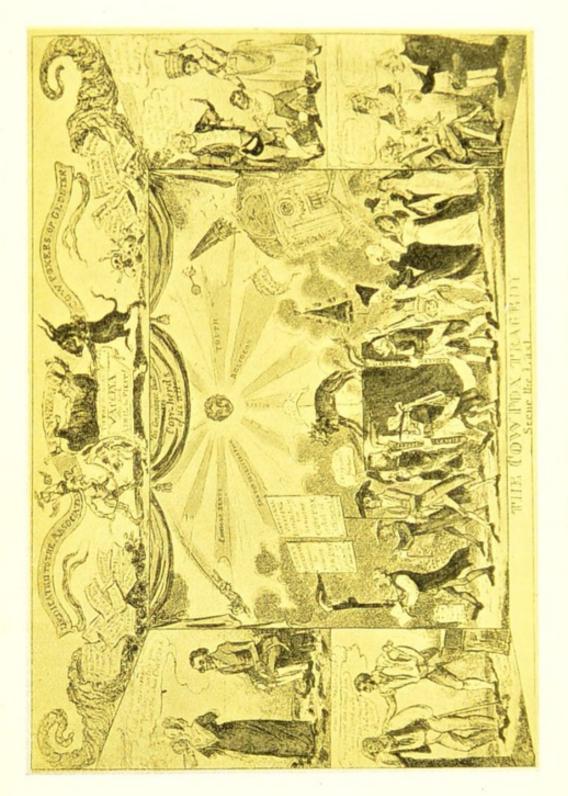
These notes of Nash's were written about the year 1781, and after his death were passed to a Mr. Thomas Nash, and from him to Mr. Robert Keate. According to Crookshank, Jenner was acquainted with Nash.

Another observer who was well acquainted with cowpox was Rolph, who practised for nine years in Gloucestershire about this period. He had noted that out of hundreds of cases that had come under his observation, not a single one Rolph's experiences had proved either dangerous or fatal.

He also states: "There is not a medical practitioner of even little experience in Gloucestershire, or scarce a dairy farmer, who does not know from his own experience, or that of others, that persons who had suffered from cowpox are exempted from the agency of the variolous poison."

Downe records that cowpox inoculation was practised in several cases with success as early as 1771, and he relates the case of a butcher near Bridport, who was inoculated with cowpox matter, by means of a needle, in two or three places on his hand. He afterwards came repeatedly into contact with persons suffering from smallpox, but never contracted the disease.

One of the most interesting incidents, however, in the history of cowpox inoculation is that of Benjamin Jesty, a farmer living at Yetminster in Dorset, who carried on a large business as a cattle dealer. In



"THE COWPOX TRAGEDY" From a caricature by G. Cruikshank, 1812

the year 1774 he inoculated his wife and three of his children with cowpox matter. Mrs. Jesty was inoculated in the arm under the elbow, and her sons above the elbow, the inoculates his incision being made with a darning family with cowpox needle, and the virus taken on the spot from the cows of a farmer at Chittenhall, whither Jesty had taken his family. The sons developed the disorder in a favourable way, but Mrs. Jesty's arm became much inflamed.

As Jesty's experiment became known, the boldness and novelty of it created great interest and caused quite a sensation in the neighbourhood.

The causes that led the country farmer to the idea of inoculation with cowpox matter may best be gathered from his own story, which he communicated to the Rev. Dr. Bell, of Swanage:—

"When the smallpox raged in the vicinity and inoculation was introduced into the village (Yetminster), alarmed for the safety of his family, he bethought himself of this expedient. There had been in his family two maidservants, who, after having the disorder from the cows, and knowing this to be a preventive of the smallpox, had attended, the one her brother, the other her nephew, in the natural smallpox, without taking the infection. This circumstance led Mr. Jesty to communicate by inoculation the disorder of the cows to his family. For this purpose he carried them to the field of a neighbouring farm, and, as has been related, performed the operation on the spot.

"To the other question, how did it happen that this discovery expired at its birth, a ready solution will be found in the character of the ingenious farmer whose pursuits were widely different from those of medicine, literature or science, and in the natural prejudice of mankind strengthened by the alarm which the inflammation of Mrs. Jesty's arm had excited. To such a height was this prejudice carried that a neighbouring surgeon, whose name I have not been able to learn, had almost lost his practice from the bare proposal of following up Mr. Jesty's bold and successful experiment."

Over thirty years afterwards this statement, duly attested, was forwarded to the Jennerian Society in London by Dr. Bell, and it was accepted as satisfactory evidence of Jesty's discovery. The Society invited him to pay a visit to the metropolis for the purpose of having his portrait painted, as the earliest inoculator of cowpox. The worthy farmer accepted the invitation, and, accompanied by his son Robert, whom he had inoculated in 1774, he journeyed to London. According

The earliest inoculator of cowpox

to an account of the visit, written at the time, the pair "met with great attention from the members of the Society, who were much amused with

Jesty's appearance and manners. Before he left his country home his family had tried to induce him to attire himself more fashionably for his visit to the methopolis, but without effect. 'I do not see,' said the bluff old farmer, 'why I should dress better in London than in the country,' and so he appeared before the Jennerian Society in his country farmer's clothes, which are described as being peculiarly old-fashioned. In order to prove their statement, Robert Jesty willingly consented to be inoculated for the smallpox, and his father for the cowpox, but neither took effect."

Jesty was then invited to sit for his portrait to Mr. Sharpe, an artist, and the picture, when finished, was to be presented to him. But the old farmer proved an impatient sitter, and could only be kept quiet by the artist's wife playing to him on the piano. The portrait when completed was presented, together with a pair of very handsome gold-mounted lancets, to Jesty, and the members of the Jennerian Society signed the following statement, which accompanied the presentation:—

"Mr. Benjamin Jesty, farmer, of Downshay, in the Isle of Purbeck, having visited the original Vaccine Pock Institute, Broad Street, Golden Square, London, in August, 1805, we think it a matter of justice to himself, and beneficial to the public, to attest that among other facts he has afforded decisive evidence of his having vaccinated his wife and two sons, Robert and Benjamin, in the year 1774, who were thereby rendered unsusceptible of the smallpox, as appears from the exposure of all the parties to that disease frequently the whole course of thirty-one years."

Thus, through Jesty's visit to London, he satisfactorily established his claim as the first inoculator for cowpox. He died in 1816, and was buried in the churchyard of Worth Matravers, near Swanage, and his tombstone bears the following inscription:—

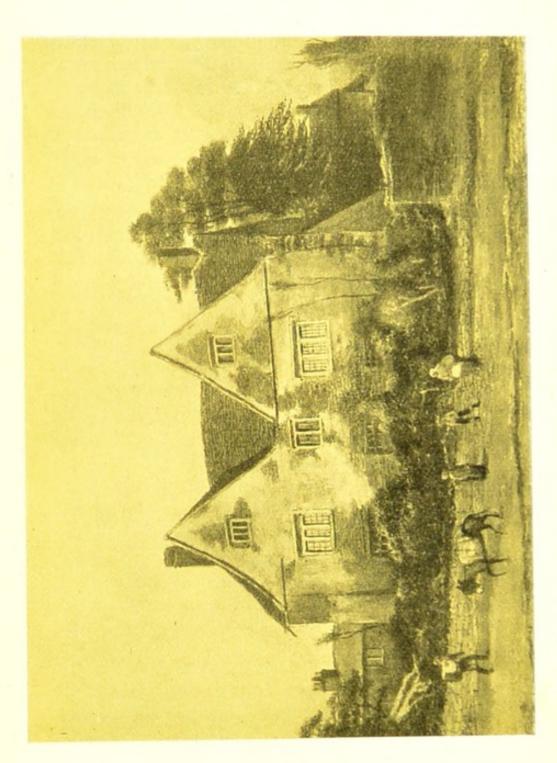
Sacred
To the Memory
of
BENJN JESTY (of DOWNSHAY)
Who departed this life
April 16th, 1816

He was born at Yetminster in this County, and was an upright Honest man; particularly noted for having been the first Person (known) that introduced the Cow Pox by inoculation, and who, from his great strength of mind, made the experiment from the Cow on his wife and two sons in the year 1774.

Aged 79 years

His wife, who was thus the first person known to have been intentionally inoculated with cowpox, lived to the age of eighty-four, died in the year 1824, and was buried by the side of her husband.





THE OLD VICARAGE, BERKELEY, WHERE DR. EDWARD JENNER WAS BORN

### CHAPTER V

# THE DISCOVERER OF VACCINATION

The close of the eighteenth century saw the dawn of a new era in preventive medicine, by the discovery and establishment of the value of vaccination by Edward Jenner, whose name will ever be remembered as the vanquisher of smallpox, which for centuries before his time had ravaged the world.

He was born in the year 1749, at Berkeley, in Gloucestershire, and was the third son of the Rev. Stephen Jenner, the vicar of that place. At the period of Jenner's birth, inoculation was being vigorously advocated as a preventive of smallpox, and when he was but eight years of age, his parents having decided that he should be inoculated, he was promptly put under a preparatory regimen. "For six weeks," he tells us later, "he was bled and purged, and kept on a low diet, and dosed with medicine, and was then removed to one of the so-called inoculation stables, and haltered up with others in a terrible state of disease." Jenner was fortunate to escape with a mild attack, but it affected his health for many years afterwards, and it is probable that the experience he then went through made such an impression upon his mind that he eventually began his investigations on the prevention of the disease.

At the age of thirteen he decided to follow the profession of medicine, and was apprenticed by his father to Messrs. Ludlow, a firm of surgeons in Sodbury, near Bristol, with whom he remained for six years. It was during this period of his apprenticeship that one day a young country woman came to seek medical advice, and, the subject of smallpox having been mentioned, she exclaimed, "I cannot take it, for I have had cowpox." Her reply seemed to have made a deep impression on Jenner, and doubtless set him thinking as to why this should be.



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DR. EDWARD JENNER From an engraving by W. Read

Apparently he never forgot it, but marked it out for a new line of research.

On attaining his majority, he came to London and entered as a house pupil with the famous John Hunter, and assisted him in forming his museum. It is said that he often discussed the subject of smallpox with the great anatomist, and Pupil of John Hunter on one occasion when relating his hopes and fears of the possibility of substituting vaccination for inoculation, the characteristic reply of the great surgeon was: "Don't think, Jenner, but try."

Tiring of town life, he resolved, after a time, to return to his native village, and there he settled down as a country practitioner, occasionally visiting Cheltenham, where, on account of his London experience, he was sometimes called in consultation by local practitioners.

During his early days in Berkeley, about 1778, he wrote to John Hunter, telling him that he had unfortunately fallen in love, and he regretted to inform him that his suit did not to Jenner prosper. Hunter's amusing reply, in which he recommends his old pupil to study hedgehogs as a cure for love-sickness, is characteristic of the man. It was as follows:—

"Dear Jenner,—I own I was at a loss to account for your silence, and I was sorry for the cause. I can easily conceive how you feel, for you have two passions to contend with, viz., that of being disappointed in love, and that of being defeated; but both will wear out, perhaps the first soonest. I own I was glad when I heard you were to be married to a woman of fortune; but let her go, never mind her. I shall employ you with hedgehogs, for I do not know how far I may trust mine. I want you to get a hedgehog in the beginning of winter, and weigh him, put him in your garden, and let him have some leaves, hay, or straw, to cover himself, which he will do, then weigh him in spring, and see what he has lost. Secondly, I want you to kill one at the beginning of winter, to see how fat he is;

and another in spring, to see what he has lost of his fat. Thirdly, when the weather is very cold, and about the month of January, I could wish you would make a hole in one of their bellies, and put the thermometer down into the pelvis, and see the height of the mercury; then turn it upwards towards the diaphragm, and observe the heat there. So much at present for hedgehogs. London, 1778."

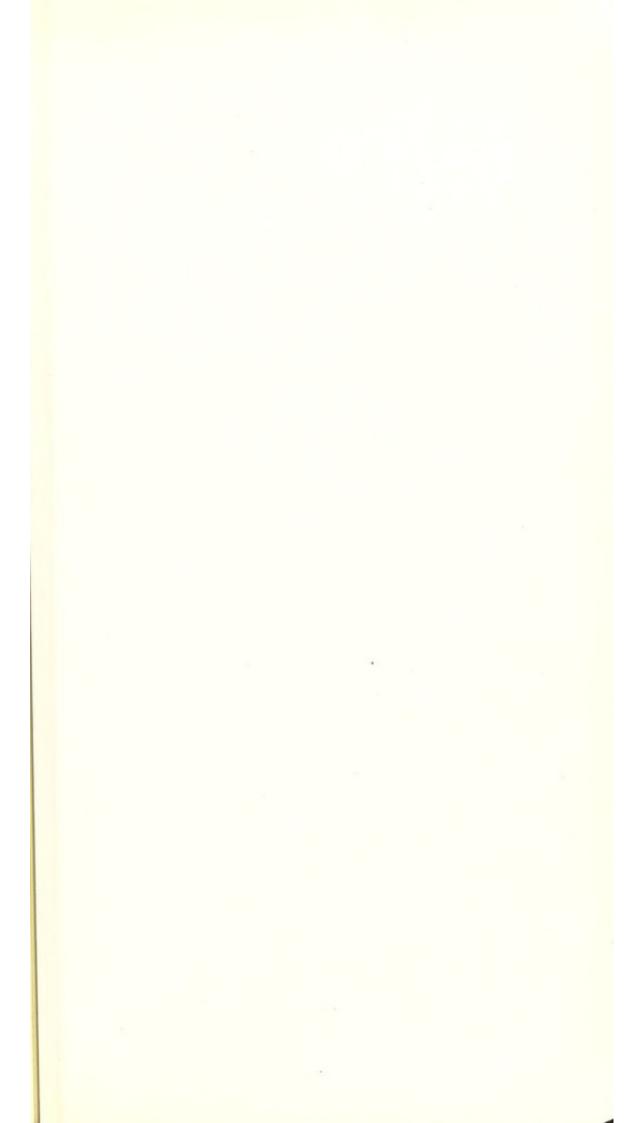
Some years later, Jenner married a Miss Kingscote, and his married life was a long and happy one.

In the year 1780, he determined to take up the study of cowpox, and in the month of May in that year he first disclosed to his friend Edward Gardner his future hopes respecting the great object of his pursuit.

Describing his personal appearance about this time,
Gardner says: "He was rather under middle size, but
robust, active and well formed. He was particular in
his dress, and when I first met him at
Frampton Green, he was clad in
a blue coat with yellow buttons,
buckskins, well-polished jockey boots with handsome
silver spurs, and carried a smart whip with a silver
handle. His hair, after the fashion of the time, was
done up in a club, and he wore a broad-brimmed hat."

One can readily picture Jenner and his friend as they rode together on the road between Gloucester and Bristol, when the following conversation took place. After relating the natural history of cowpox, Jenner gave his opinion as to its origin from the heel of the horse, specifying the different kinds of disease which attacked milkmen when they handled infected cows. He dwelt upon that variety which afforded protection against smallpox, and with deep

and anxious emotion mentioned his hope of being able to propagate that variety from one human being to another, until he had disseminated the practice all over the globe to the total extinction of the dread disease. "Gardner," he concluded, addressing his





DR. EDWARD JENNER INOCULATING HIS SON, EDWARD, AT-THE AGE OF EIGHTEEN MONTHS, WITH SWINEPOX MATTER, NOVEMBER, 1789

triend, "I have entrusted a most important matter to you, which I firmly believe will prove of essential benefit to the human race. I know you, and should not wish what I have stated to be brought into conversation, for should anything untoward turn up in my experiments I should be made, particularly the type of the subject of ridicule, for II am the mark they all shoot at."

It was about this period Jenner came to the concclusion that the grease of horses, a disease well known to farriers, was the same as cowpox and smallpox. One day, accompanied by his nephew, "Grease" and smallpox with diseased heels, he exclaimed, pointing to the infected part, "There is the source of smallpox. I have much to say on that subject, which II hope in due time to give to the world."

He satisfied himself that two forms of disease had been hitherto confounded under the name of cowpox, conly one of which protected against smallpox. Many cases of failure, he judged, were thus to be accounted for. His next step was to ascertain that the true cowpox itself only protects when communicated at a particular stage of the disease.

Just at this time, however, there was little opportunity of studying cowpox in that part of Gloucestershire. Few cases had been seen, and he had no opportunity of inoculating the disease, and so putting his theories to the test. But he steadily pursued his investigations, and in 1788 he had a drawing made of the hand of a milkmaid with cowpox, which he took with him to London to show Sir Everard Home, who agreed that it was interesting and curious, and the subject began to be talked about in medical trircles in London.

While deliberating on the subject of vaccine inoculation, he made some experiments on swinepox, which he believed to be of similar origin to common variolæ. In November, 1789, he inoculated his son

Edward, who was then about eighteen months old, with some swinepox matter which he had collected. He watched the result with the greatest anxiety and interest, and noted that the progress of the disease seemed similar to that arising from the insertion of true smallpox when the attack was slight. No harm apparently resulting to the boy, on April 7, 1791, he inoculated him again, and although a vesicle appeared and there was some erysipelas, it quickly died away, and the child showed no sign of indisposition the whole time.

In 1796, an excellent opportunity occurred for an important experiment. Cowpox broke out in a farm near Berkeley, and a dairymaid named Sarah Neames contracted the disease. Jenner seized the opportunity and resolved to put his theories to a theories tested practical test, and on May 14 he took some matter from a sore on the maid's hand, and inserted it by means of superficial incisions into the arm of James Phipps, a healthy boy about eight years of age. The inoculation succeeded, the result being described as similar to that produced by inoculation with variolous matter. The whole died away, leaving scabs, and subsequent eschars. After a period of six weeks had elapsed, Jenner determined to try the effect of variolous inoculation, and on July I he inoculated the boy with variolous lymph by means of punctures and slight incisions, and was delighted to see that no smallpox followed.

These results he communicated in the following letter to Gardner:—

"Dear Gardner,—As I promised to let you know how I proceeded in my inquiry into the nature of that singular disease, the cowpox, and, being fully satisfied how much you feel interested in its success, you will be gratified in hearing that I have at length accomplished what I have been so long waiting for, the passing of the Vaccine Virus from one human being to another by the ordinary mode of inoculation. "A boy of the name of Phipps was inoculated in the arm from a pustule on the hand of a young woman who was infected by her master's cows. Having never seen the disease but in its casual way before, that is, when communicated from the cow to the hand of the milker, I was astonished at the close resemblance of the pustules, in some of their stages, to the variolous pustules. But now listen to the most delightful part of my story. The boy has since been inoculated for the smallpox, which, as I ventured to predict, produced no effect. I shall now pursue my experiments with redoubled ardour.—Believe me, yours very sincerely, Edward Jenner, Berkeley, July 19, 1796."

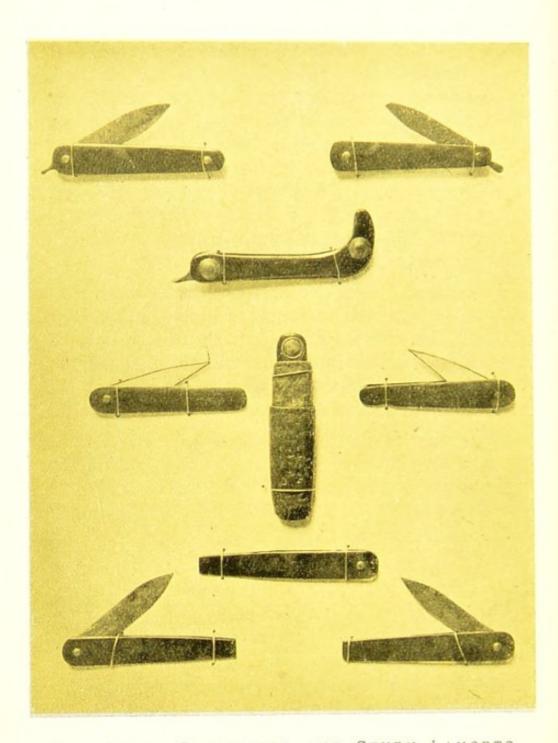
To confirm his experiments, and make his discovery certain, he resolved to repeat it before publishing the facts to the world. But again, the disappearance of cowpox in the dairies delayed him, and in the mean-time he resolved to prepare a paper on the subject to send to the Royal Society.

Early in the year 1797, owing to an outbreak of cowpox, an opportunity again occurred, and he inoculated three other persons with success. He then completed his paper, and revised it for publication.

He first transmitted the manuscript to the Royal Society, and it was submitted to the Council, but after some time was returned to him, as they apparently thought the evidence was Jenner publishes not strong enough to warrant publicahis paper tion in their Transactions. Jenner, undaunted, resolved to publish the paper himself, and about the end of June, 1798, it was printed, with additions, in the form of a pamphlet, entitled:

"Inquiry into the Causes and Effects of the Variolæ Vaccinæ, a Disease discovered in some of the Western Counties of England, particularly Gloucestershire, and known by the name of the Cowpox."

In this historic pamphlet, which led to such important results, Jenner begins by describing the disease of the horse called by farriers, "the grease," which he



TWO IVORY SCARIFIERS AND SEVEN LANCETS
USED BY DR. JENNER IN HIS FIRST
EXPERIMENTS

describes as "an inflammation and swelling in the heel, from which issues matter possessing properties of a very peculiar kind. It is capable of generating a disease in the Human Body (after it has undergone the modification which I shall presently speak of) which bears so strong a resemblance to the smallpox, that I think it highly probable it may be the source of that disease. . . . . In summarised this dairy country," he continues,

"a great number of cows are kept. The office of milking its here performed indiscriminately by both Men and Maid-servants. One of the former having perhaps been appointed to apply dressings to the heels of a Horse affected with the Grease, and not paying due attention to cleanliness, incautiously bears his part in milking the cows, with some particles of the infectious matter adhering to his fingers. Should this be the case, it commonly happens that a disease is communicated to the Cows, and from the Cows to the Dairy-maids, which pretty rapidly spreads until most of the cattle and domestics of the farm feel its unpleasant consequences."

Jenner thus accounts for the origin of cowpox, the characters of which he then describes in detail. He assumed that virus from the horses' heels was intensified by being passed through the cow, on the ground that the horse so rarely affects his dresser with sores, while a milkman rarely escapes infection from the cow.

While in London concerning the publication of the pamphlet, Jenner called on Mr. Cline, and left with him some of the cowpox virus for trial. Having a young patient suffering from an affection of the hip joint, (Cline thought that the counter irritation excited by the cowpox might prove Independent confirmation beneficial, and in July, 1798, he inserted some of it into the patient's hip by means of two punctures. The result corroborated Jenner's experiments, the child sickened on the seventh day, and the fever subsided on the eleventh. The patient was

An Inquiry into the natural History of a Disease known in Glostershire when the name of the low-pox

The deviations of Man from the stake in which he was originally placed by Nature were to have proved to him a prolific. Source of Diseases. From the love of Mendor, from the indulgences of Luxury of from his fond nefo for a musement, he has familiarized himself with a great number of animals that may not originally have been intended for his aforciates. The Wolf, dis armi'd of interfero city, is now pillowid in the dady's lap. The lat, the little Typer of the late M' I show Hunter moved by experiments. The late M' I show Hunter moved by experiments. That the Dog is the Wolf in a dyenerated state.

FIRST PAGE OF JENNER'S ORIGINAL MANUSCRIPT FOR HIS PAMPHLET:

"An inquiry into the natural history of a disease known in Glostershire by the name of the Cowpox" replaces without contracting the disease, and Cline, writing on August 2, 1789, states: "I think the ssubstitution of cowpox poison for smallpox promises to be one of the greatest improvements that has ever the made in medicine. The more I think on the ssubject, the more I am impressed with its importance."

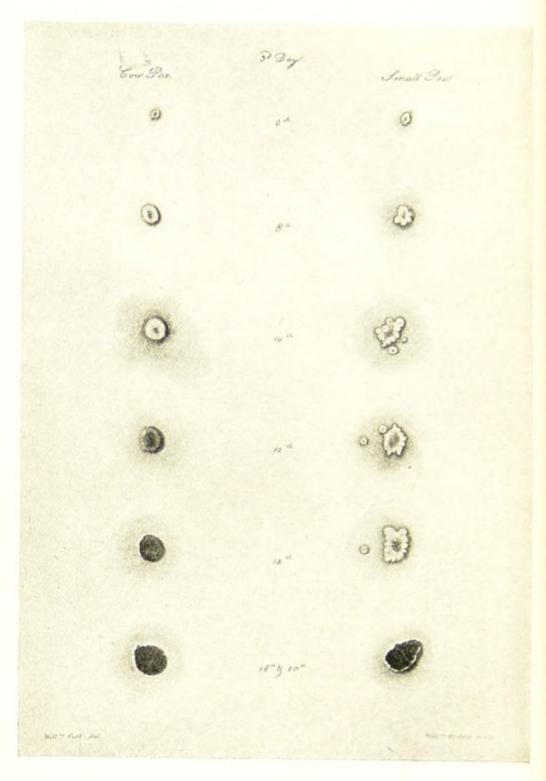
Ingenhousz, a well-known physician and scientist of the time, was the first critic of Jenner's discovery. In the autumn of the same year he opposed the cowpox theory, and cited certain cases where semallpox had been contracted after plenner's critics inoculation by cowpox. Jenner recognised a formidable antagonist in Ingenhousz, whose ceriticism did a great deal to weaken Jenner's position. The leading scientific and medical men in London mext took up the subject, and several questioned the accuracy of Jenner's observations, and stigmatised his idoctrines as conjectural and ridiculous.

Others, such as Pearson and Woodville, although adopting Jenner's ideas, endeavoured to exploit them on lines of their own, which proved a failure. Their experiments were attended with somewhat serious results, and for a time stopped the progress of Henner's work.

Both held important positions, being physicians to the Smallpox Hospital in London, and it is stated that the experiments they commenced to carry out on vaccination were so carelessly performed that they were practically useless. It was further said that the vaccine they used was actually disseminating the disease they wished to prevent.

Jenner, hearing of this, and fearing that their failures would seriously rebound on him, decided to come to London, and in the early part of the year 1799 he came up to the metropolis.

He at once set to work to rescue his discovery from destruction, and to expose the errors which had been committed by his imitators. He



ORIGINAL ILLUSTRATION FOR JENNER'S "INQUIRY,"
REPRESENTING COWPOX AND SMALLPOX PUSTULES
ON THE THIRD DAY OF ERUPTION

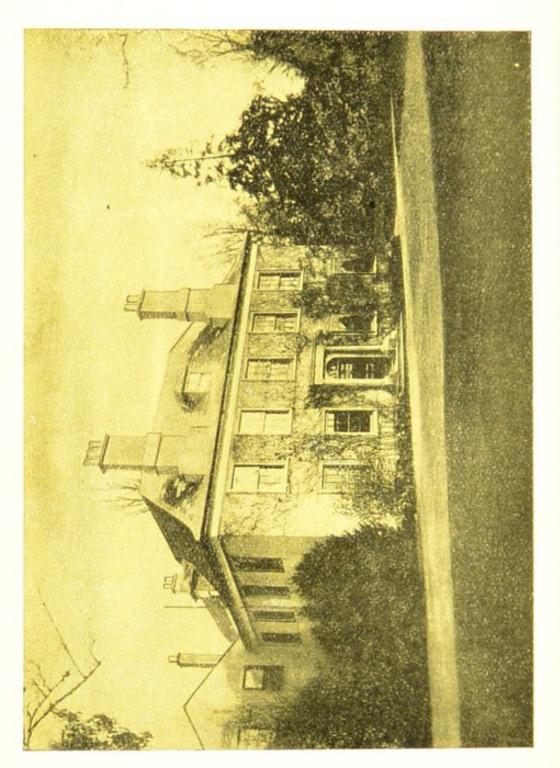
gathered around him a goodly band of enthusiastic supporters, and they set to work to counteract the evil done to their cause.

The word "vaccination" was the name first given in France to Jenner's method of cowpox inoculation. The method was based almost exactly on the earlier practice of inoculation, the cowpox matter being inserted under the skin of the arm by a lancet point. In 1799, Woodville started a succession of arm-to-arm vaccinations, so that the matter could be passed from one person to another with the same result. This method proving successful, it became commonly adopted in practice.

Meanwhile, Pearson, not to be outdone, decided to establish an institution of his own for the inoculation of cowpox, and appointed a Vaccine Board, of which the himself was the Principal, and the Duke of York consented to become a Patron. He wrote to Jenner offering to make him an "extra corresponding physician," but Jenner, thinking that sufficient consideration had not been shown to him in the matter, declined the offer.

Jenner now returned to Berkeley to complete a second paper on which he was engaged in reply to the criticism of his opponents, and shortly afterwards published it in the form of a pamphlet, entitled, "A Continuation of Facts and Observations relative to the Variolæ Vaccinæ."

Soon after its publication he returned to London, and communicated with Lord Egmont, asking for an interview, so that "he might submit a plan by which the country might derive the advantages of his discovery, and profit by Jenner introduced to Royalty with the Duke of Clarence, and eeventually submitted a scheme for the establishment of a public institution for vaccine inoculation. He ultimately succeeded in inducing the Duke of Clarence and Lord Egmont to withdraw from



EDWARD JENNER LIVED WHERE DR. CHANTRY COTTAGE, BERKELEY,

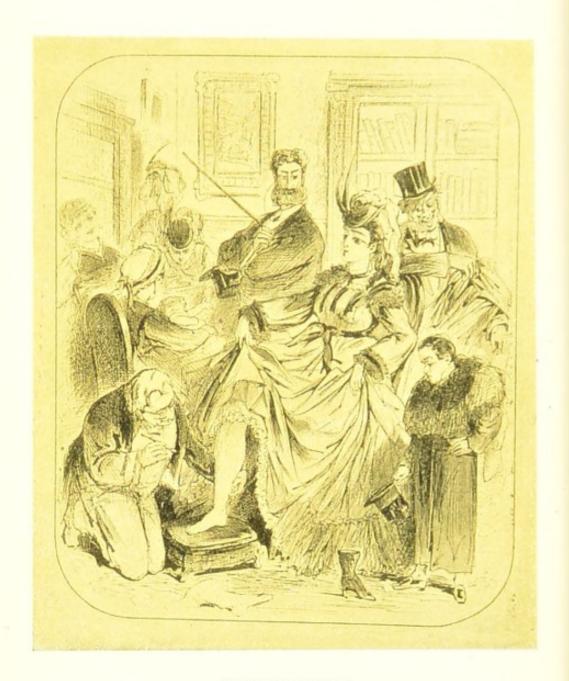
Pearson's projected institution, and was presented by Lord Berkeley to the King, the Queen, and the Prince of Wales, whose encouragement gave him fresh hope and materially aided the spread of the vaccination propaganda throughout the country.

The practice of vaccination was soon taken up in America, and was introduced and made known by Dr. Waterhouse, of Cambridge, Massachusetts, who published an article in the Columbian Sentinel, in March, 1797, entitled Vaccination in America "Something Curious in the Medical

Line." Thus, with characteristic enterprise, did the Americans grasp a discovery but just made in the land of its birth, and at a meeting of the American Academy of Arts and Sciences, presided over by John Adams, then President of the United States of America, the subject was attentively considered, and no time was lost in endeavouring to procure a supply of vaccine matter.

This was received in June, 1800, and, on July 8, Waterhouse vaccinated one of his sons, aged five years, this boy being the first person to be vaccinated in America. Finding the results successful as compared with Jenner's experience, he vaccinated several other members of his family, and also subjected them to smallpox inoculation afterwards. Finding the children resisted the disease even when subjected to the most crucial test, Waterhouse exclaimed, "One fact in such cases is worth a thousand arguments."

He was anxious that the benefits of vaccination should be diffused throughout the Continent, and his efforts attracted the attention of Thomas Jefferson, then President of the United States of America, who took a considerable interest in the subject. Jefferson had some of the members of his family vaccinated in August, 1801, and from his own family the President supplied Dr. Gantt with a small quantity of vaccine matter. Thus the seed of vaccination was planted at the capital of the United States.



## VACCINATION

"Ah! doctor, I did well in not allowing myself to be vaccinated on the arm . . . it leaves a mark . . . and then my husband finds that I have a fine leg."

"He was not aware of it?"

"He!! Never!"

From a French caricature by Carlo Gripp

The propaganda next spread over the continent of Europe, and vaccination was demonstrated in Vienna by De Carro in 1799, and its importance once being realised, it was taken up with enthusiasm in Switzerland, France, Italy and Spain. In the latter country, the Government despatched an expedition in 1803 for the purpose of introducing vaccination throughout the Spanish possessions of the Old and New Worlds. The vessel in which the expedition sailed carried twenty-two unvaccinated children, who were to be vaccinated on the voyage in order to preserve the vaccine by passing it from arm to arm. In South America, in Sicily, and

In Italy, Jenner's discovery was successfully exploited by Sacco, of Milan, in 1801. He laboured with unwearied activity, becoming the director of vaccination, and in a few years he had vaccinated 20,000 people. For many of these the vaccine was obtained from an animal with natural cowpox which was discovered in Lombardy after a prolonged search.

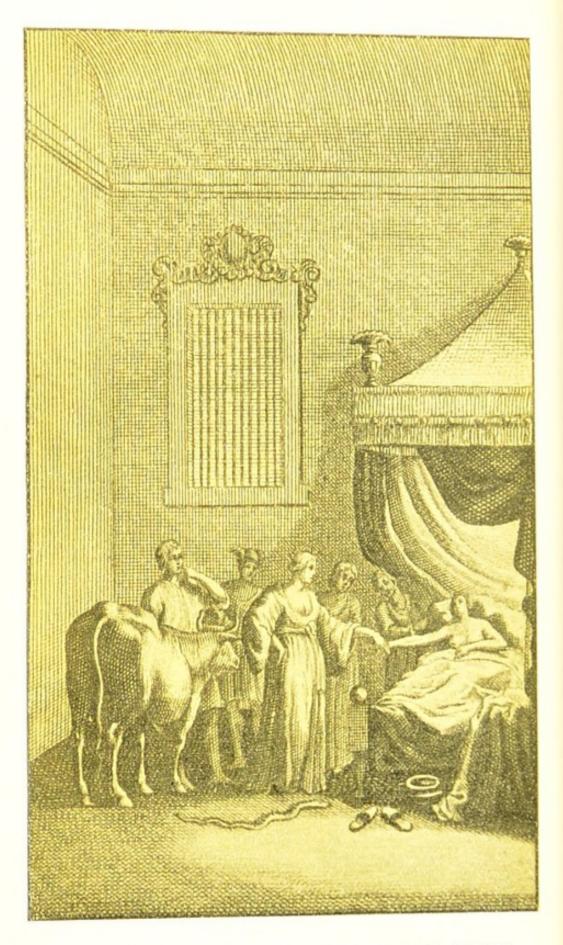
Naples, where smallpox was rife, it was received with great enthusiasm, religious processions being formed

for the purpose of receiving "the blessed vaccine."

In France, Valentin and Desoteux were the first to call attention to the subject, and the practice soon became popular. Liancourt established a Vaccine Institute by subscription, obtaining much financial support from Lucien Bonaparte, who was then Secretary of the Interior.

François Colon, a Paris physician, in order to encourage those who hesitated, had his own son, eleven months old, vaccinated. He also wrote and circulated widely a pamphlet in which he said:—

"I will inoculate gratuitously all the poor, all soldiers and their children, who have not had smallpox, on a simple letter of recommendation from beneficence committees, from different administrations and constituent bodies. I will entertain at my house and attend three intelligent nursing mothers with their



"THE BLESSINGS OF VACCINATION TO MAN"
From an engraving, 1800

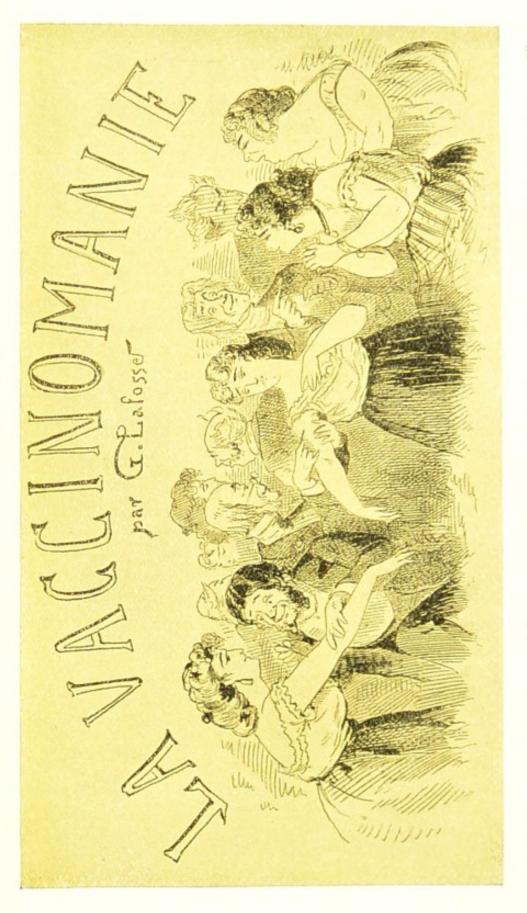
children, during the whole period of inoculation. I invite all my colleagues to study my inoculations, and to be convinced by the testimony of their own eyes of the usefulness and advantages of vaccine. I shall be very pleased to enter into correspondence with all the doctors of provinces who wish to know and to propagate this method of inoculation. I will send them some virus vaccine which may be useful to them.

"In order to inspire the public with confidence, I will give to those who wish it a receipt for what I receive as my fees, with a promise to restore it at sight to those who suffer from smallpox after having been inoculated by me. As a guarantee of this promise, I will, if they wish it, sign a deed in the presence of a lawyer, with mortgage on an unencumbered real estate, binding me to refund in the above-mentioned case, as far as I shall be called upon to make good my promise."

In January, 1800, Jenner's Treatise was translated into French by the Count de la Roque, and, five years later, Napoleon demonstrated his confidence in Jenner's vaccinated theories by ordering all soldiers who had not suffered from smallpox to be vaccinated.

Among the most enthusiastic supporters of Jenner's discovery was the Empress of Russia, who urged her subjects to be vaccinated, and who ordered that the first child who submitted to the operation should receive the name of "Vaccinoff," and be educated at the public expense. The Empress of Russia The young Vaccinoff, after vaccination, is interested was conveyed to St. Petersburg in one of Her Majesty's Imperial coaches, and, after being educated in the Foundling Hospital, received a pension for life. The Empress, in commemoration, afterwards presented Jenner with a valuable diamond ring.

Meanwhile, Jenner's influence and popularity increased. The Emperor of Austria and the King of Spain, at his request, released Englishmen, who had



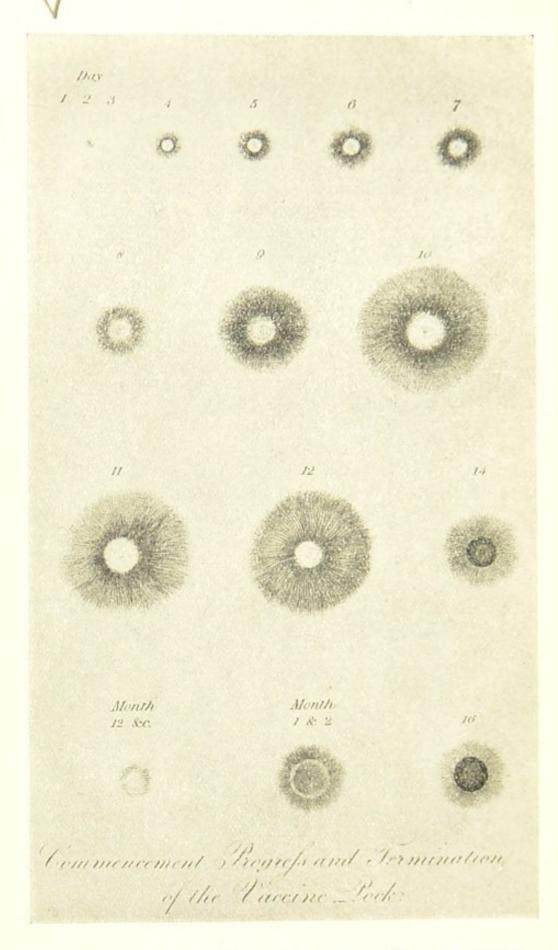
"Those doctors, those doctors! they see pretty arms, pretty shoulders, pretty . . . . And they make by it, too!"

From a French caricature by Lafosser

been taken in the wars. In France, where a Dr. Wickham remained a prisoner, Jenner was applied to by one of his friends to present a petition to Napoleon, soliciting the physician's liberation. He readily undertook the task, and drew up a petition to the Emperor at the time when he was exhibiting his greatest animosity towards Britain. The petition was forwarded and safely reached the Emperor. It happened to be handed to him when he was seated in his carriage, together with the Empress Josephine, waiting for the horses to be changed. Prisoners Glancing at it, he exclaimed to the released driver, "Away, away!" But the Empress, examining the paper, said, "But stay, you see from whom this comes-Jenner." Napoleon's manner changed immediately, and he replied, "What that man asks is not to be refused," and so Wickham was released. Napoleon liberated several other prisoners, and even whole families, from time to time, at Jenner's request, and it is stated that he never refused a petition sent by Dr. Jenner, such was the esteem in which he held him.

Napoleon further issued a decree that a hundred thousand francs should be at the disposal of the Minister of the Interior for the propagation of vaccination.

During the years that Jenner had spent upon his research and inquiry, he had expended a considerable amount of money, hoping that his discovery might eventually recoup him and become a financial success. This becoming known to his friends, he was advised to apply to Parliament for a grant, and on December 9, 1801, he journeyed to London to frame a petition, for which he obtained a Parliamentary grant to promise of assistance from Admiral Jenner Berkeley. The petition was laid before the House in the March of the following year, and was presented on the following grounds: First, that he had discovered that cowpox was inoculable from cow to



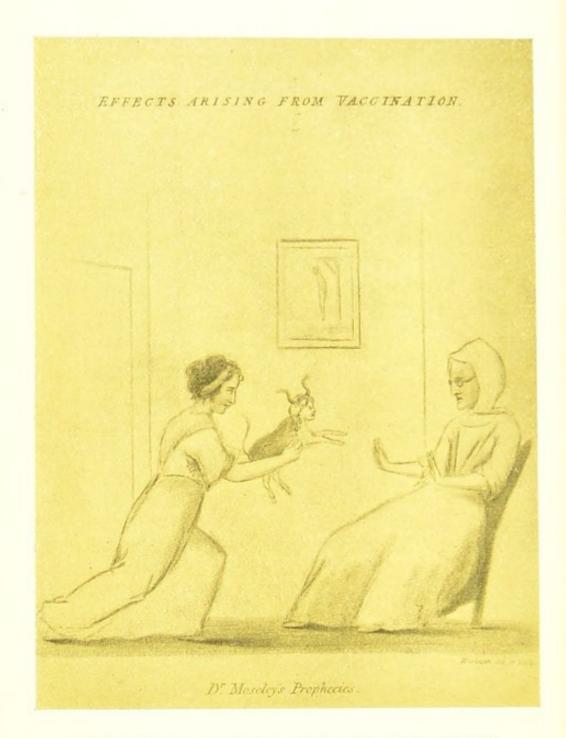
COMMENCEMENT, PROGRESS AND TERMINATION
OF THE VACCINE POCK
From the Report of the Royal Jennerian Society, 1816

man; second, that persons so inoculated were for life perfectly secure from smallpox. Jenner added that he had not made a secret of his discoveries, that the progress of smallpox had already been checked, and that he had been put to much expense and anxiety. The matter was referred to a Committee, and in June, 1802, the report was laid before the House, which ultimately granted ten thousand pounds to Jenner, who then left London for Berkeley.

Shortly afterwards, some of his leading supporters in London again took up the matter of forming a Jennerian Institution, for promoting universal vaccine inoculation. The Queen became a patron, the King granting permission for the society to be called "The Royal Jennerian Society for the

Termination of the Smallpox," and an influential board of directors and a medical council were appointed. Jenner

was made President, and Dr. John Walker appointed Resident Vaccinator. Thirteen stations were opened in London, and in eighteen months they announced that 12,288 inoculations had taken place, and 19,352 charges of cowpox virus had been supplied to different parts of the British Empire and foreign countries. But although the Institution began well, in less than six years its success was on the wane. Jenner disagreed with the chief vaccinator, who resigned his office, and in 1808 the Society practically collapsed. Meanwhile, Jenner had decided to take a practice in London, and for some years settled in Hertford Street, Mayfair. But the results were far from satisfactory, and, after a trial, he returned to his native village. In a letter to one of his friends, referring to the matter, he says, "I have now completely made up my mind with respect to London. I have done with it, and have again commenced the village doctor. I found my purse not equal to the sinking of the thousand pounds annually (which has actually been the case for several successive years), nor the gratitude of the public deserving such a sacrifice. How hard, after what I have done, the toils



"EFFECTS ARISING FROM VACCINATION"
From a caricature, 1806

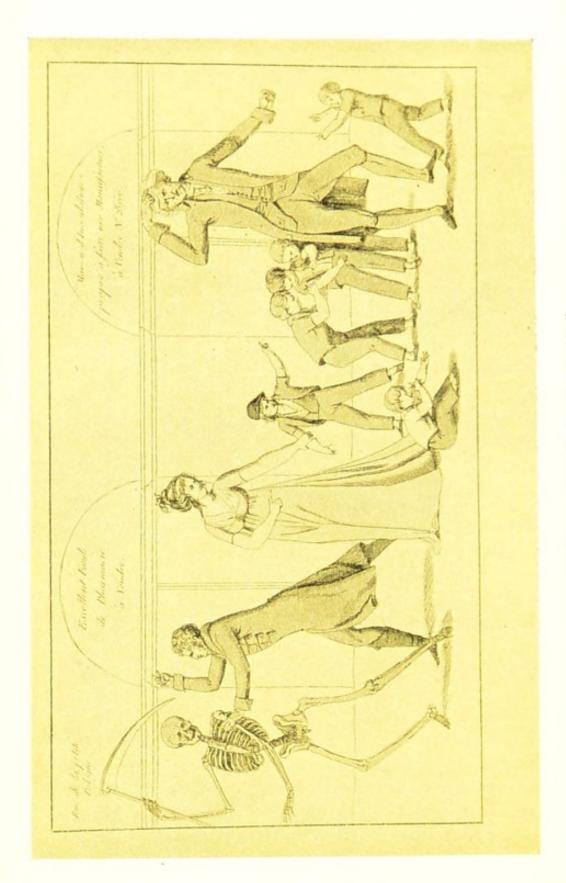
I have gone through, and the anxieties I have endured in obtaining for the world a greater gift than man ever bestowed on them before (excuse this burst of egotism), to be thrown by with a bare remuneration of my expenses."

In the year 1804, failures of the new inoculation multiplied considerably, and even some of Jenner's best friends began to lose confidence. His time at Berkeley was largely taken up difficulties in replying to correspondents, and in endeavouring to account for the numerous failures. Jenner had been always aware that smallpox had occurred after vaccination, but that if it did occur he believed that vaccination could not have been properly performed.

He still continued to vaccinate all the poor who applied to him on certain days, so that he had sometimes as many as three hundred persons waiting at his door.

Notwithstanding the success and support that vaccination was now receiving in all parts of the world, there were many who still opposed the practice, and pamphlets, lampoons and caricatures were constantly published by the anti-vaccinators. It was actually alleged by some that those inoculated by cowpox would assume the bovine Criticism and caricature features of the animals themselves.

A Dr. Rowley wrote a long treatise entitled "Cowpox Inoculation no Security against Smallpox Infection; to which are added the Modes of treating the Beastly New Diseases produced from Cowpox." The work is illustrated by the picture of "a cow-poxed ox-faced boy." "Various beastly diseases," asserts the writer, "common to cattle have appeared among the human species since the introduction of cowpox—cowpox mange, cowpox abscess, cowpox ulcer, cowpox gangrene, cowpox mortification, and enormous hideous swellings of the face, resembling the countenance of an ox with the eyes distorted and eyelids forced out of their true



"EVILS OF VACCINATION"
From a French caricature

situation. Smallpox is a visitation from God, but the cowpox is produced by presumptuous man; the former was what Heaven ordained, the latter is perhaps a daring violation of our holy religion."

Another writer on the subject recounts the story of a lady who complained that "since her daughter was inoculated, she coughed like a cow, and has grown hairy over her body."

Another anti-vaccinationist declared that the inoculation of the cowpox had been discontinued in a part of the country in which he had been staying, because those who had been inoculated in that manner "bellowed like bulls."

It was stigmatised by others as the "damnest thing ever proposed," and "the most degrading relapse of philosophy that ever disgraced the civilised world."

But, notwithstanding these fulminations, vaccination made steady progress, and every country vied in honouring its discoverer. Jenner was relected a member of nearly all the for Jenner leading scientific societies in Europe.

He was presented with the Freedoms of the Cities of London, Dublin, Edinburgh and Glasgow, and the Medical Society of London conferred on him a gold medal at their anniversary festival, when Dr. Lettsom delivered an oration on vaccination. In 1812, at Berlin, the anniversary of cowpox inoculation was celebrated by a Jennerian feast, and addresses and diplomas poured in upon the discoverer from all parts of the world. The following quaintly worded address was sent to him by the Red Indians of North America:—

"Brother! Our Father has delivered to us the book you sent to instruct us how to use the discovery which the Great Spirit made to you, whereby the smallpox, that fatal enemy of our tribe, may be driven from the tearth. We have deposited your book in the hands of a man of skill whom our Great Father employes to attend us when sick or wounded. We shall not fail to teach our children to speak the name of Jenner,

Thursday werens Ho, 000 char of calarent voted before to I? Jenner some years we . Dear Mr Klack. Fray excure This shabby bit of Paper which I catch up to tell you that Parliament lash eight wited me the same of 20,000 for making public my Vace in Discoury. Local The Debate continued too levers & ah elf Furing which much cloquence was displays of 2 A. P. My Willufore my Wind Blithread tou Smith & others.

FACSIMILE OF ORIGINAL AUTOGRAPH LETTER WRITTEN BY DR. JENNER TO MRS. BLACK.
INFORMING HER THAT PARLIAMENT
HAD VOTED HIM £20,000

and to thank the Great Spirit for the bestowing upon him so much wisdom and so much benevolence. We send with this a belt and string of wampum in token of our acceptance of your precious gift, and we beseech the Great Spirit to take care of you in this world, and in the land of spirits."

In July, 1806, the subject of vaccination was again brought before the House of Commons, and the question was considered whether a sufficient reward had been bestowed on the original discoverer of vaccine inoculation. The Agrant of £20,000 matter was referred to the Royal College of Physicians, and, having conferred with the other medical faculties in Scotland and Ireland, they reported in favour of a further grant being made to 1Dr. Jenner, with the result that it was agreed to present thim with twenty thousand pounds.

The Government having decided to support vaccination, they felt called upon to found an establishment to carry on the work of the Royal Jennerian Institution, and Jenner was asked to draw up a plan and to prepare an estimation of the cost. The illness of his son necessitated his return to Berkeley, but the warrant for instituting a national vaccine establishment was cobtained in his absence, and he was appointed director.

Dissensions, however, crept in at the outset, which cended in Jenner's resigning his post as director, although he continued to give the Institution the benefit of his advice when it was needed.

In 1810, many domestic trials came upon him. The cleath of his son distressed him so deeply that it materially affected his health. He went to Bath to cendeavour to recruit, and on his return he was called tupon to attend the Earl of Berkeley, and visited him tup to the time of his death. The following year he blost his sister, which was also a great grief to him.

On May 26 in the same year, while in London, the was summoned to attend the bedside of the Hon. Robert Grosvenor, who had developed a

serious attack of smallpox. He had been vaccinated by Jenner ten years previously. In four days he became delirious, and the worst symptoms mani-

fested themselves in a very short time.

Attended by Sir Henry Halford, Sir

Walter Farquhar, and Jenner, he
recovered, although a fatal termination

had been regarded as inevitable. This case served to revive the agitation against vaccination, and caused quite a panic amongst those who had had their children vaccinated. A fresh outburst of criticism, together with a summons to give evidence before the House of Lords on the Berkeley peerage, seems to have greatly unnerved Jenner, and aged him considerably.

In 1814, he visited London for the last time, when he was presented to the allied sovereigns and the Emperor of Russia on the occasion of their visit to London. The Grand Duchess of Oldenberg, the sister of the Emperor, was very desirous that Jenner should be introduced to

His Majesty, and an interview took place.

Alexander conversed with him on the astonishing effects of vaccination in Russia, which he declared "had nearly

subdued smallpox throughout that country." Jenner replied that he had the highest gratification upon hearing such an important fact from his Majesty. The doctor then presented the monarch with a volume of his own works, which he graciously accepted. A few days afterwards Count Orloff waited on Jenner, and asked him if a Russian order would be acceptable to him, but Jenner replied that he thought this exclusively belonged to men of independent means. The Count expressed his surprise, and Jenner respectfully declined the honour. A little later he had an audience with the King of Prussia, who gave him a pressing invitation to visit Berlin.

In the year following he lost his wife, after a long illness, and, stricken with grief, he retired to Berkeley, which place he did not leave again, except for a day or two, until his death. On January 23, 1823, he wrote in his last letter to his friend Gardner. "I have had an attack from a quarter I did not expect, the Edinburgh Review. These people understand literature better than physic, but it will do incalculable mischief. I put it down at one hundred thousand deaths at least. Never was I involved in so many perplexities."

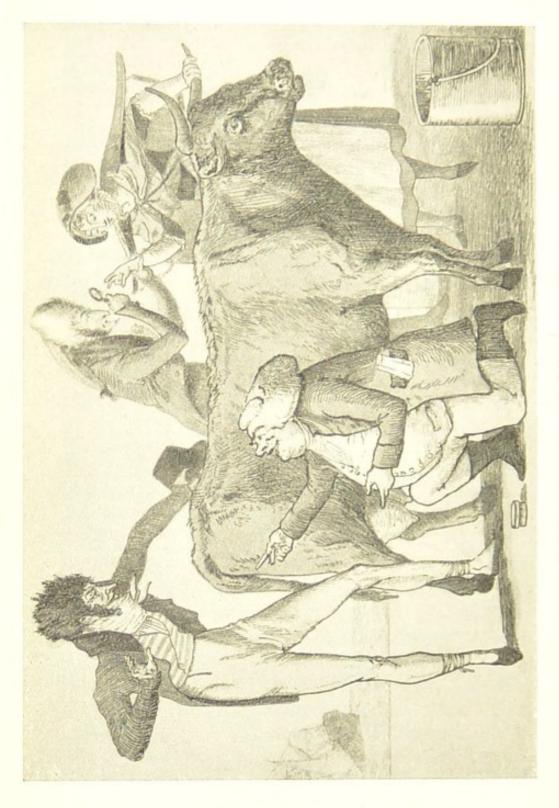
The following day he retired to rest, apparently in his usual health, and the next morning rose and came down to his library, where he was stricken with an attack of Jenner's apoplexy and paralysis of the right side. He never rallied, and died the following morning, January 26, 1823.

In estimating Jenner's great achievement it should be remembered that his discovery was not so much the fact that persons who had been infected with cowpox escaped variola, Jenner's achievement but that the matter taken from a human being suffering from cowpox had the power of protecting another individual from smallpox.

The lives that this discovery has been instrumental in saving are the most eloquent tribute to his memory, and the principles that he advocated and put in practice still remain the one efficient means of protection against one of the most dreaded scourges that afflict mankind.

It has been well said, that the brilliant discoveries that have since been made in the field of protective inoculation have added lustre to his fame, and his name will ever be remembered as that of one of humanity's greatest benefactors.





"THE ORIGIN OF VACCINATION"

(Reproduced by kind permission from a print in the possession of the Royal Society of Medicine)

## CHAPTER VI

## THE PROGRESS OF THE PRINCIPLES OF VACCINATION AND INOCULATION

Many years elapsed before Jenner's principles of vaccination were applied to other diseases. This began with the study of fermentation, the foundation and development of bacteriology.

In 1838, De La Fonde, a Professor at the Alfort Veterinary School, pointed out to his students "little rods," as he called them, which he found in the blood of animals that had died from anthrax, an observation which was destined to have far-reaching results.

Following this, Henle, in 1841, came to the conclusion, on purely theoretical grounds, that the cause of some diseases must be living organisms, and, by a similar induction, Farr applied the word "zymotic" or "fermentive" to them, a term which was soon almost universally adopted.

In 1849, Pollender and Brauell also noted certain micro-organisms in the blood of anthrax victims, but it was not until 1861 that these bodies were studied by Davaine, who, describing the thread-like corpuscles which he and disease had seen in the blood of sheep attacked

by anthrax, declared: "In the present state of science, no one would think of going beyond these corpuscles to seek for the agent of contagion. This agent," he stated, "is visible, palpable; it is an organised being endowed with life, which is developed and propagated in the same manner as other living beings. By its presence, and its rapid multiplication in the blood, it without doubt produces in the constitution of this liquid, after the manner of ferments, modifications which speedily destroy the infected animal."

Further investigations proved the correctness of Davaine's theory, viz., that most forms of contagious disease were the result of fermentative processes,



LOUIS PASTEUR Born 1822. Died 1895

analogous in all respects to the fermentation which takes place in wine or beer.

It is very largely to the brilliant researches of Louis Pasteur, and his investigations into the causation of disease, that we owe the foundation of the scientific era of inoculation which produced such remarkable developments in recent times. Born on December 27, 1822, at Dôle, in France, he was the son of a tanner who carried on business in that town. He was sent for a short time to a boarding school in Pasteur and Paris, and afterwards to a college at Arbois, where his father hoped he would eventually become professor. In 1842, he took his degree as Bachelor of Science at Dijon, and afterwards went to Paris to attend classes at the Sorbonne, where he studied under the celebrated Dumas. In 1848, he was appointed Professor of Physics at Dijon, and six years later became Professor and Dean of a new faculty of science at Lille, where he commenced his famous researches on fermentation which led to such important after results. In 1865, he was sent, on the recommendation of Dumas, to Alais, to investigate the silk-worm disease, which had seriously affected the silk industry of France. This he brought to a successful conclusion.

In 1877, he began to investigate anthrax, or charbon. This mysterious scourge was then causing terrible ravages among sheep in France, and animals stricken down by the disease died within two hours.

The starting-point of Pasteur's investigation of anthrax was, that not only fermentatives, but also disease processes, were due to the action of bacteria. He declared that anthrax was due to this cause, and set out to prove that Early results it was possible to modify the virulence of a pathogenic organism by artificial means, so that it no longer produced fatal results, and that this attenuated virus protected against the fatal form of the disease.



DR. CHAMBERLAND .

In the summer of 1879, Pasteur interrupted his researches on anthrax to investigate a sudden epidemic that had broken out in the farmyards of France, known as chicken cholera.

As far back as 1869 Moritz, an Alsatian veterinary surgeon, suspected that this disease was caused by some micro-organism, and nine years afterwards Perroncito made a drawing
of an organism which he discovered in tholera a fowl that had died from the disease.

Toussaint studied it, and demonstrated that this microbe was indeed the cause of virulence in the blood, and sent the head of a cock that had died of chicken cholera to Pasteur.

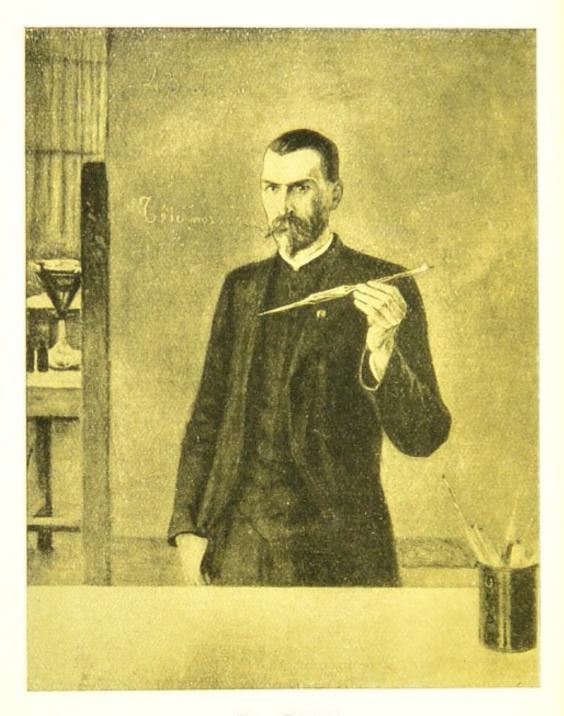
Pasteur at once began an investigation of the subject, and discovered that a micro-organism was the specific cause of the disease. He further found that it could be propagated outside the fowl's body in sterilised material, and after two generations of such cultures the virus did not lose its specific character or intensity if each culture was made from the preceding one at short intervals. If a few days were allowed to elapse, he noted that the virus became weaker, and it could then be obtained of various degrees of

virulence, some fatally strong, others so attenuated that a bird inoculated with it had a slight illness only, but this trifling effect protected it against subsequent

Inoculation with attenuated virus

inoculation with the stronger virus. His further researches showed that the virus could be cultivated of each degree of intensity without altering its strength, that the weakest could be cultivated as well as the strongest, and that of any intermediate strength equally; they threw an entirely new light on certain phenomena, and paved the way to his further remarkable discoveries.

In 1881, he resumed his search into the cause of anthrax, and in February he was able to announce his discovery of a vaccine to protect animals against



DR. ROUX

that disease, which aroused considerable interest throughout Europe.

The Melun Agricultural Society hastened to give the scientist facilities to prove his assertions, and invited Pasteur to organise public experiments on his method of preventive vaccination for anthrax in the neighbourhood of Melun, Fontainebleau and Provins.

Pasteur accepted the proposition, and the Melun Agricultural Society put sixty sheep at his disposal, twenty-five of which were to be vaccinated by two inoculations at twelve or fifteen days' interval, with some attenuated anthrax prime virus. Some days later these twenty-with anthrax five, and also twenty-five others, were to be inoculated with some very virulent anthrax culture. "You will see," wrote Pasteur with confidence, "the twenty-five unvaccinated sheep will all perish, and the twenty-five vaccinated ones will survive."

On May 5, 1881, the day appointed for the test, Pasteur, accompanied by his assistants Chamberland and Roux, whose names have since become famous in the world of science, arrived at the farm Pouilly-le-Fort, near Melun, where a great throng of physicians, apothecaries, veterinary surgeons and agriculturists had assembled. The sheep to be vaccinated and those left unvaccinated for the test were separated under a large shed, and each of the former received an injection consisting of five drops of the bacteridium culture, which Pasteur called the first vaccine, on the inner surface of the right thigh, by means of a small Pravaze syringe. A second inoculation was not made till a fortnight afterwards, with a vaccine which, though still attenuated, was more virulent than the first. On the last day of the month the third and last inoculation, with very virulent anthrax culture, took place, this time on fifty sheep and ten cows, vaccinated and unvaccinated. Pasteur, writing to his son-in-law, said: "On June 5 at the latest, the final result will be known, and that should be twenty-five survivors out of twenty-five sheep and six cows. If this success is complete this will be one of the finest examples of applied science in this century, consecrating one of the greatest and most fruitful discoveries."

The result was in every way satisfactory, as Pasteur had predicted. The sheep that had been originally vaccinated remained alive, while the unvaccinated ones died.

On June 13, Pasteur communicated the result of this great control experiment to the Académie des Sciences, and said: "We now possess virus vaccine of anthrax capable of preserving those inoculated from the dread disease, without being in itself deadly."

The French Government, desirous of recognising his discovery, offered him the Grand Cordon of the Legion of Honour, but Pasteur would only accept it on the condition that his able assistants, Roux and Chamberland, were to share in the honour, and to this stipulation the Government acceded.

Before even the completion of the discovery of the anthrax vaccine the great scientist had embarked on an investigation of still greater importance, namely, that into the cause and prevention of hydrophobia.

The subject of this dread disease, which goes back to a period of great antiquity, was one which has baffled scientific investigation throughout the centuries.

Celsus described it in Roman times, and remarked on the patient being tortured at the same time by thirst and an invincible repulsion towards water. He recommended suction of the bitten part by means of a dry cupping glass, and afterwards the application of the actual cautery, or of strong caustics, a method of treatment which remained in vogue down to the nineteenth century. Galen also described the disease, and recommended the excision of the wounded part as the chief protective treatment. In the Middle Ages

certain Saints, such as St. Hubert in Belgium, were supposed to effect miraculous cures, and sea-bathing, or the throwing of the patient into a lake or pond, was supposed to effect a cure.

In 1780, a prize was offered for the best method of treating hydrophobia in France, and it was awarded to Surgeon-Major Leroux, who wrote a dissertation recommending cauterisation as the best means of treatment.

All methods and remedies, however, proved unavailing, and down to the latter part of the nineteenth century, hydrophobia was regarded as hopelessly incurable, and the mortality from rabies was gradually increasing. Practically every person in whom the symptoms of hydrophobia were once developed, might be regarded as condemned to death without hope of a reprieve.

Pasteur's attention was first drawn to the subject in 1880, by Bourrel, an old army veterinary surgeon, who had long been trying to discover a remedy for the disease. He had suggested, as a preventive measure, that the teeth of dogs should be filed down so that they could not bite into the skin.

Bourrel kept a number of animals in kennels, and two suffering from rabies he brought to Pasteur's laboratory. On December 10 of the same year, while Pasteur was still planning his investigations, he was notified by Professor Lannelongue that a little child, five years of age, who had been bitten by a dog on the face a month before, had been admitted to the Hôpital Trousseau, with symptoms of hydrophobia. The child died after twenty-four hours of horrible suffering, suffocated by the mucus Pasteur's experiments which filled the mouth. Pasteur seized the opportunity, and, hurrying to the

hospital with all speed, collected some of this four hours after the child's death. Adding a small quantity of water to the mucus, he inoculated some rabbits with the liquid, and they died in less than thirty-six hours.

"SERUM DIRECT FROM THE HORSE, FRESHLY SUPPLIED"

# From a German caricature

The saliva from these he injected into other rabbits, who succumbed almost immediately. On examining the blood of the latter under the microscope, he discovered a micro-organism, which he cultivated in veal broth, and then inoculated rabbits and dogs with the culture. After their death, a microscopical examination of the blood revealed the same organism.

Following these experiments he made several attempts to inoculate rabies direct to other rabbits through the medium of the saliva of a mad dog. The great danger involved in carrying this out can be imagined from the description given of the following scene. On one occasion two assistants at Bourrel's kennels undertook to drag a mad bulldog suffering from rabies, and foaming at the mouth, from the cage in which it was kept. They seized it by means of a lasso, and, stretching it on a table, held the struggling and ferocious animal down while Pasteur, with undaunted courage, drew off a few drops of the deadly saliva by means of a glass tube held between his lips.

But uncertainty still followed the inoculations even of this medium, and the incubation was very slow, so that some other means, which would be more rapid and certain, were sought for. Roux, from observation of several rabid animals in the laboratory, concluded that the mad fury of a rabid dog excited the grey cortex of the brain, and mentioned the same to Pasteur, who decided to follow the matter up. On making the next post-mortem on a mad dog, he uncovered the brain, and with a sterilised tube removed a

particle of the substance, which he mixed with sterilised water. With this grey cortex liquid he inoculated several animals,

who rapidly succumbed to hydrophobia, and from this experiment he concluded that the seat of the rabid virus was not in the saliva only, as it was previously thought to be, but was also in the brain. He resolved to confirm this by a long series of experiments, and on the termination of these he decided to submit his results to be verified

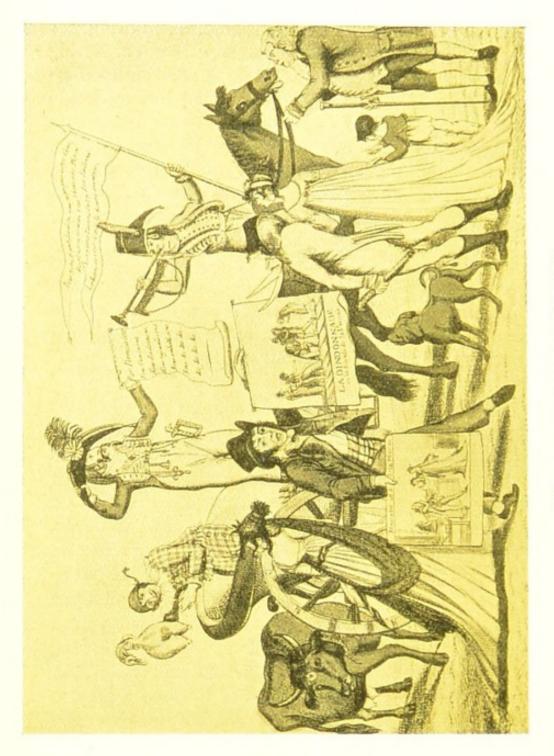
by a Commission. This was duly constituted by the French Government, in May, 1884, and a plan of work was immediately formulated. A large number of dogs were submitted to control experiments, which were continued for several months, and in August of the same year the Commission reported to the Minister of Public Instruction that the first series of experiments had been carried out with the most satisfactory results, and they desired that further research might be prosecuted on a larger scale. This was agreed to, and a suitable place was found in the Park Villeneuve l'Etang, near St. Cloud.

On March 28, 1885, Pasteur, writing to a friend, states, "I shall be busy for some time, settling down, or rather settling my dogs down, at Villeneuve l'Etang. I also have some new experiments on rabies in hand, which will take some months. I am demonstrating this year that dogs can be vaccinated or made refractory to rabies, after they have been bitten by mad dogs. I have not yet dared to treat human beings after bites from rabid dogs; but the time is not far off, and I am much inclined to begin by myself—inoculating myself with rabies, and then arresting the consequences; for I am beginning to feel very sure of my results."

In May everything was ready at Villeneuve l'Etang for the reception of sixty dogs, where they were accommodated in immense kennels. Besides this. forty other dogs were under experiment Kennels at Rollin, and fifteen others at Bourrel's. established at Villeneuve Two series of experiments were then l'Etang carried out on these animals, the first consisting in making the dogs refractory to rabies by preventive inoculation and the second in preventing the onset of rabies in dogs bitten or subjected to But months went by without bringing inoculation. about any satisfactory conclusions.

The matter was brought to a crisis by an unexpected incident. On July 6, 1885, a little boy named

Joseph Meister, nine years of age, was brought to Pasteur's laboratory by his mother. He had been terribly bitten two days before by a mad dog at Meissengott. The wounds had been cauterised by a local doctor, who had advised the mother to bring her child to Paris. Pasteur was torn by conflicting emotions, and the sight of the child, who suffered so much that he could hardly walk, caused him to decide that something should be done. He made arrangements for the comfort of the poor mother and her son, and told them to see him again at five o'clock, Meanwhile, he communicated with his colleagues. Vulpian and Grancher, and they came to the laboratory that evening and examined the boy's wounds, some of which were very deep. In the end they concluded to inoculate the boy immediately. The liquid chosen was fourteen days old, and had quite lost its virulence, and was prepared from some fragments of medulla oblongata. Pasteur had a Boy inoculated bedroom prepared for the mother and child close at hand, and the little sufferer soon became happy with the many animals that the scientist kept about the place for experimental purposes. The first inoculation was followed by others, gradually increasing in strength. "All is going well," wrote Pasteur, on July 12, "the child sleeps well, has a good appetite, and the inoculated matter is absorbed into the system from one day to another without leaving a trace. It is true that I have not yet come to the test inoculations which will take place on Tuesday, Wednesday and Thursday. If the lad keeps well during the following three weeks, I think the experiments will be safely concluded." Thus, for days, Pasteur became a prey to anxiety, going through in succession hopes, fear and anguish in his desire to save the child from a terrible death. His wife states he could no longer sleep, visions came to him of this child struggling in the last mad paroxysms of hydrophobia. At length the treatment was complete, and Pasteur, yielding to persuasions to take a rest, left the boy in the hands of Grancher



"VACCINATION ON TOUR" From a caricature, 1799

for a short time, and went into the country, where he lived in constant expectation of the daily report from Paris. But these were all favourable, and the boy seemed to be completely well.

On October 21, Pasteur made his statement on the case before the Académie des Sciences. By this time three months and three days had passed, and no ill had resulted to the child.

Bouley, at this historic meeting, remarked, "We are entitled to say that the date of the present meeting will remain for ever memorable in the history of medicine, and glorious for French science; for it is one of the greatest steps ever accomplished in the medical order of things-a progress realised by the discovery of an efficacious means of reported to preventive treatment for a disease, the the Académie incurable nature of which was a legacy handed down by one century to another. From this day, humanity is armed with a means of fighting the fatal disease of hydrophobia and of preventing its onset. It is to M. Pasteur that we owe this, and we could not feel too much admiration or too much gratitude for the efforts on his part which have led to

Directly Pasteur's great discovery was made known, people who had been bitten by rabid dogs hastened to Paris from all parts of Europe, and a regular hydrophobic service was rapidly organised. Physicians came from all parts of the world, asking to be allowed to study the details of the method. Pasteur took a personal interest in each of his patients, and children especially inspired him with a loving solicitude.

such a magnificent result."

The Académie des Sciences appointed a Commission, which unanimously adopted the suggestion that an establishment for the Commission preventive treatment of hydrophobia should be instituted in Paris, which resulted in the erection of the Pasteur Institute, in the Rue Dutot,

which was opened by President Carnot in November, 1888. This great dispensary for the treatment of hydrophobia has since become a centre of research and teaching on virulent and contagious diseases.

The example was followed in several other countries, and by May, 1889, there had been established seven anti-rabic institutions in Russia, five in Italy, one in Constantinople, one in Barcelona, one in Bucharest, one in Rio de Janeiro, one in Havana, one in Buenos Aires, one in Mexico, and one in Vienna.

Pasteur's discovery was investigated and confirmed by a Commission appointed by the British Government in 1886 to study and verify the facts. After fourteen months' investigation of the prophylactic method, they reported of the new method of inoculation or vaccination discovered by Pasteur, that it would be difficult to over-estimate its utility both from the point of view of its practical side and of its application to general pathology.

Some idea of the value of the treatment may be gathered from the following: Since anti-rabic inoculation was first performed (July 6, 1885) up to May 21, 1889, 6,870 persons were treated at the Institut de Paris alone. Dr. Roux stated, in a lecture delivered before the Royal Society of London on May 23, 1889, that,

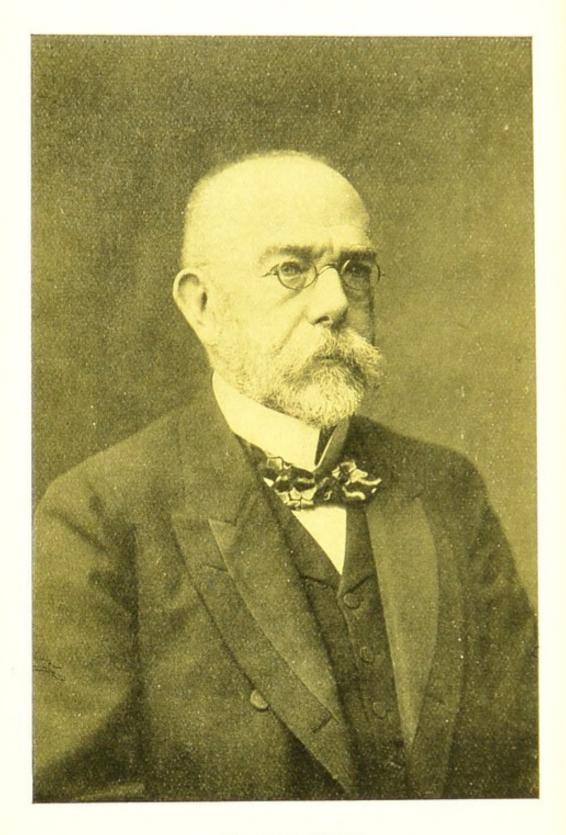
on an average, since 1885, about a Some statistics hundred and fifty persons came each month to the laboratory to be inoculated.

The injections were made, he stated, in the side, the right and left alternately; they were repeated for fifteen days. For ordinary bites, the injections commenced with medulla dried for fourteen days, and stopped with that dried for three days. In cases which were more serious, a greater number of injections were made, and the recent medullas were arrived at sooner, as a more active treatment was necessary against such bites.

But, with the conclusion of his great discovery in connection with rabies, Pasteur's labours were not yet ended, and, in spite of his failing strength, in conjunction with Roux and Yersin, researches had already been commenced in his laboratory on diphtheria, which were to lead to brilliant results in the future.

Towards the close of 1895, Pasteur was seized with a serious illness, which caused the greatest anxiety to his family and friends. Although an improvement took place for a short time, he never thoroughly recovered, and on September 28, 1895, he passed away at Villeneuve l'Etang, near the scene of his triumphant discoveries.





ROBERT KOCH Born 1843 Died 1910

#### CHAPTER VII

BACTERIOLOGY, AND ITS INFLUENCE ON PREVENTIVE
MEDICINE

Few men have done more in laying the foundation of the problems associated with immunity and the prevention of disease than Robert Koch, who was the first also to demonstrate the transmission of infectious diseases artificially from animal to animal, from which method such great results have been achieved in trecent years.

He was born on December 11, 1843, at Klausthal, in the province of Hanover, and, after finishing his academic career, and taking his degree in medicine, he became an assistant in the General Hospital Robert Koch iin Hamburg. Afterwards he became physician to the Asylum for Idiots in Langenhagen, mear Hanover, until 1868. He then took up private practice for a time, and after going through the Franco-Prussian War as a surgeon, became district physician in the town of Wollstein. Here he fitted up a llaboratory, and commenced to devote all his spare ttime to the study of the diseases of animals in the district in which he lived. Anthrax was one of the cearliest diseases in which he interested himself, and it was his ambition to completely work out the life-cycle cof the anthrax bacillus. The results of his research were published in 1876, when he set out the eetiological relationship of the bacillus of anthrax to tthe disease, and by this paper, which has become one cof the great classics of bacteriology, he threw the first cclear light on the obscurity which at that time enveloped the world of micro-organisms.

Koch's work on anthrax was accepted everywhere in Germany, but was opposed in France by Paul Bert. Bert's opposition induced Pasteur to take up the study of anthrax. He confirmed Koch's observations, and eeventually, as already stated, brought the matter to a practical and satisfactory conclusion.

Koch then, with characteristic doggedness and energy, set himself to work to improve the methods and technique of bacteriology, and to him we owe many of the most useful discoveries in that branch of science. He devised most of the best methods for sterilisation and disinfection, and suggested many improvements in methods of work. Perhaps his greatest achievement may be said to be his poured-

Koch's bacteriological work plate method for the isolation of organisms in pure culture. Up to this time no method had ever been devised for obtaining pure cultures of organisms

from mixtures. He watched with minute care the development of the bacteria under the microscope, rejecting as worthless any preparations which showed extraneous organisms, and controlling his work by constantly producing the disease by inoculation. To obtain his pure cultures he employed nutrient gelatin, which he used in such proportions as to give a solid coagulum when cool, and added to this gelatin meat infusion to furnish a nutrient medium for the growth of organisms. His method of making streak cultures and of pouring plates gave pure cultures, and solved a problem which had been attempted by so many of his predecessors, and which gave greater impetus to the advancement of bacteriology as a science.

He demonstrated the parasitic nature of infectious diseases, and the methods of cultivating pathogenic bacteria outside the body were brought by him to a high degree of perfection. In this way a systematic study of the cause of a disease became possible, and the means of combating its action determined by experiments.

Koch eventually removed to Berlin, and devoted himself exclusively to laboratory work. In 1882, he set to work to elucidate the etiology of tuberculosis, which he succeeded in proving to be due to the tubercle bacillus. To demonstrate this he devised a new method of staining, by means of which he could

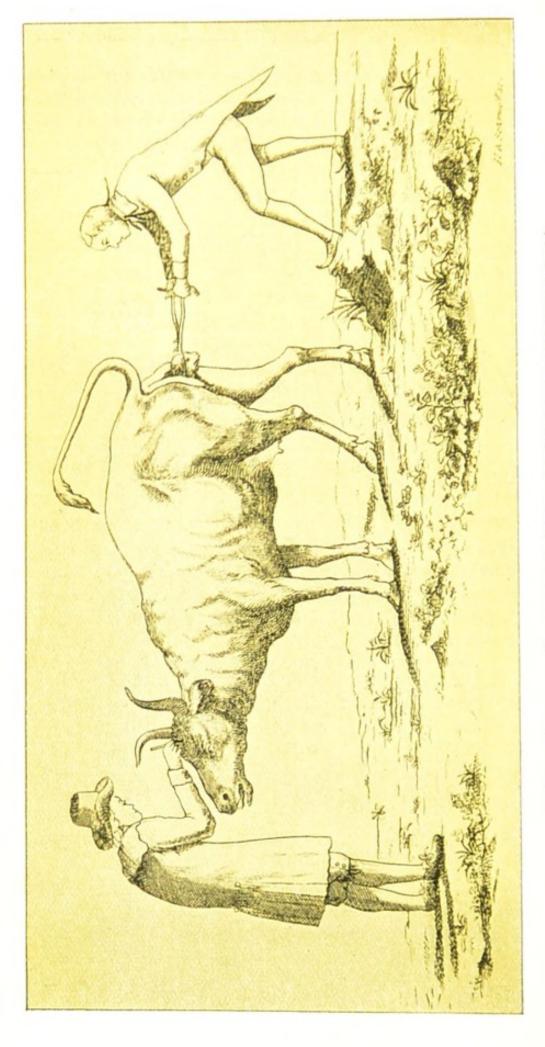
differentiate between the organisms always present in tuberculous regions and those accidentally found there. He finally succeeded in cultivating the organisms he had stained, on solidified blood serum, and proved their relation to the disease by inoculation experiments on rabbits and guinea-pigs.

In 1890, he described the preparation of tuberculin, which was at once hailed throughout the world as the great specific for tuberculosis. Unfortunately, on trial it did not prove the success anticipated, and its failure for some time detracted Preparation of tuberculin from Koch's reputation. Physicians and patients suffering from the disease flocked from far and near to Berlin in the hurry to obtain even the smallest quantity of the remedy, and the use of this potent product, given indiscriminately in too large doses by inexperienced men, was followed by disastrous results.

Improved methods of preparation have since been devised and exact knowledge has been gained, so that tuberculin has again come into extensive use both therapeutically in cases of tuberculosis and as a means of diagnosis in testing human beings or animals for the existence of the disease.

The later years of Koch's life were devoted to the investigation of tropical diseases, and the study of malaria. For this purpose he travelled through South Africa and German East Africa, and was in charge of the sleeping sickness commission sent out by Germany in 1906.

He died on May 27, 1910, working in the institute where he laboured daily, almost up to the last.



"THE COWPOX SWINDLE" (DER KUHPOCKEN SCHWINDEL) From a German caricature, 1801

#### CHAPTER VIII

#### THE MODERN DEVELOPMENT OF INOCULATION AND SERUM TREATMENT

Only the briefest summary is possible of the enormous development of prophylaxis and treatment by specific inoculation, since the new era of exact bacteriology was inaugurated by the researches of Pasteur, Koch, and their immediate followers. It may be stated that, apart from theoretical investigation of the mechanism of the immune reaction, practical progress has been made along two distinct lines. Pasteur's method of inoculation with an attenuated culture or virus, as described in a previous chapter, was directed to the Methods of active immunisation of the patient, and compared this is the basis of the various forms of

protective or therapeutic inoculation or "vaccination" in use at the present day, whether the inoculum or vaccine consists of a living culture of modified virulence, a suspension of the killed organisms, or a solution of the soluble toxic substances which the organisms produce in artficial fluid media. As an example of the use of a culture of modified virulence may be mentioned Ferran's and Haffkine's prophylactic vaccines against cholera and Strong's similar vaccine for plague. Killed cultures are used prophylactically in Kolle's cholera and Haffkine's plague vaccine. Wright was responsible for the first systematic use of a killed suspension of typhoid bacilli as a protective inoculation against enteric fever, and, largely owing to the advocacy of the same observer, analogous killed cultures have acquired an important position in the prophylaxis and treatment of almost all infections which can be definitely associated with a known type of organism. Active inoculation of the patient with soluble toxic substances produced in artificial culture is an important factor in the therapeutic use of the tuberculins.



W. M. HAFFKINE

Investigation of the nature of the changes in the tissues of the animal, which accompany the process of immunisation by the injection of bacteria or their products, and which form the

basis of the new condition of acquired resistance, led to the discovery that the blood and serum of such immunised animals contain substances capable of neutralising the inoculated poison or destroying the inoculated organism. The discovery of the formation of substances antidotal to bacterial toxins is associated with the names of Salmon and Theobald Smith, Brieger and Kitasato, Roux and Yersin, Chantemesse and Charrin and others. Pfeiffer showed clearly that many organisms, such as the bacilli of cholera and typhoid, streptococci, etc., to which the animal body can acquire a high degree of immunity, form no significant amount of soluble toxins. Metschnikoff and his followers attributed the defence of the organism against such invaders to the phagocytic activity of the leucocytes; but here again the work of many observers, starting with Flügge and Nuttall, showed that the body fluids of the immune animal contain substances which destroy the vitality and even the structural integrity of the infecting organisms.

It may be noted that the apparent gap between the phagocytic and humoral theories of immunity against bacteria, has been bridged to some extent of recent years by the description of "opsonins" (Wright), bodies which so alter the bacteria that they are defenceless against the attack of the leucocytes. Another great step was made when it was shown that the protective anti-bodies, whether antitoxic or anti-bacterial in action, could be transferred to an animal not actively immunised. This was shown by Richet and Hericourt to be possible with serum from an animal immunised against pyogenic cocci. A few years later came the classical work of Behring and Kitasato, proving the possibility of transferring immunity against the toxins of tetanus and diphtheria, by injecting into a normal

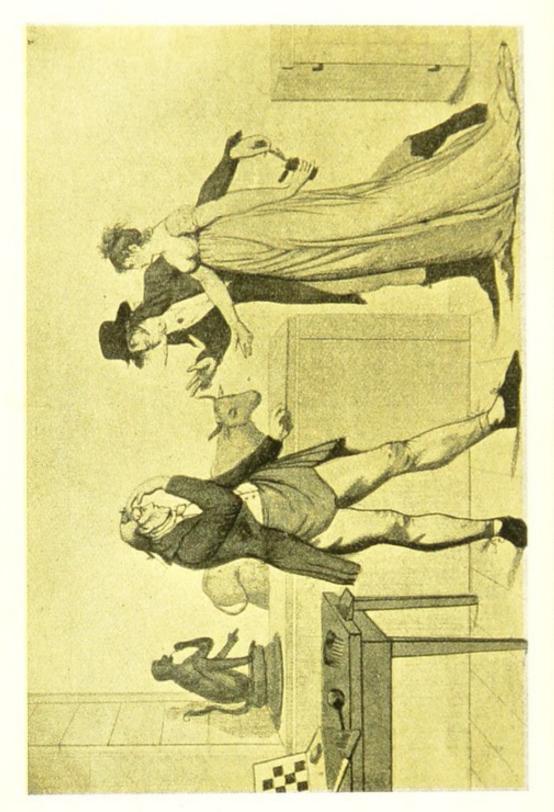


PROF. BEHRING

animal, serum from an animal rendered immune by a course of inoculation with such toxin. The introduction of these two antitoxic sera, obtained from highly immunised horses, into practical human therapeutics, in which Roux also played an important part, formed the beginning of serum therapy as distinguished from inoculation; and they still hold their place as the most unquestionably serum therapy efficacious among the various sera now available for use, though Flexner's recent results with an anti-meningococcus serum, in epidemic cerebrospinal meningitis (spotted fever), bid fair to challenge this supremacy.

It will be seen that the rival methods of inoculating and immunising the patient himself on the one hand, and transferring serum from an animal immunised by inoculation on the other, aim at inducing two distinct types of immunity, called "active" and "passive" respectively by Ehrlich. "Active" and "passive" These researches, starting with and immunity brilliantly solving the problem of the exact evaluation of sera for practical use, led him to enunciate those conceptions of the mechanism of the immune reaction which have furnished the stimulus for and fixed the direction of an enormous proportion of recent work on the subject.

From this brief summary of the results, which man, with such patience and ingenuity, has achieved in recent years over these insidious enemies of his well-being, some idea of the value of inoculative treatment may be estimated. Serum treatment is but as yet in its infancy, and its possibilities in the future are great. The success that has followed its employment in modern times promises that it may eventually prove one of the most helpful branches of the healing art, especially in combating some of the most terrible diseases with which mankind is afflicted.



"THE ADMIRABLE EFFECTS OF VACCINATION"



THE HERB GARDEN
'WELLCOME' MATERIA MEDICA FARM



THE HERB GARDEN
'WELLCOME' MATERIA MEDICA FARM
Another view

The Herb Garden is an annexe to the 'Wellcome' Materia Medica Farm at Dartford, near London, England. In it are grown specimens of medicinal plants and bherbs. Each specimen is carefully indexed for reference.



#### A FIELD OF DATURA METEL

Recent investigation has shown that *Datura metel* contains Hyoscine, Hyoscyamine and Atropine, in proportions differing from those occurring in other solanaceous plants,



#### DATURA STRAMONIUM

The vigorous growth of *Datura stramonium* cultivated on the 'Wellcome' Materia Medica Farm, is evidenced by comparison with the erect figure in the photograph.

Reproduced from photographs taken on the 'Wellcome' Materia Medica Farm, and developed with 'Tabloid' Photographic Chemicals.



## THE 'WELLCOME' MATERIA MEDICA FARM

A MODERN PHYSIC GARDEN

In one of the numerous prefaces to his *Book of Plants*, John Gerarde, author of the first English Herbal, speaks of erecting "the laboratory of an

industrious Chimist by the sweet garden of flourishing simples" in Holborn.\* Where the "sweet garden of flourishing simples" once was, the Chief Offices of Burroughs Wellcome & Co. now In the stand; and, hard by, the Wellcome footsteps of Gerarde Chemical Research Laboratories of Gerarde occupy a site in King Street. The day of gardens in Holborn is, however, long since past, and the 'Wellcome' Materia Medica Farm lies beyond the outer limits of the city's growth at Dartford, in Kent.

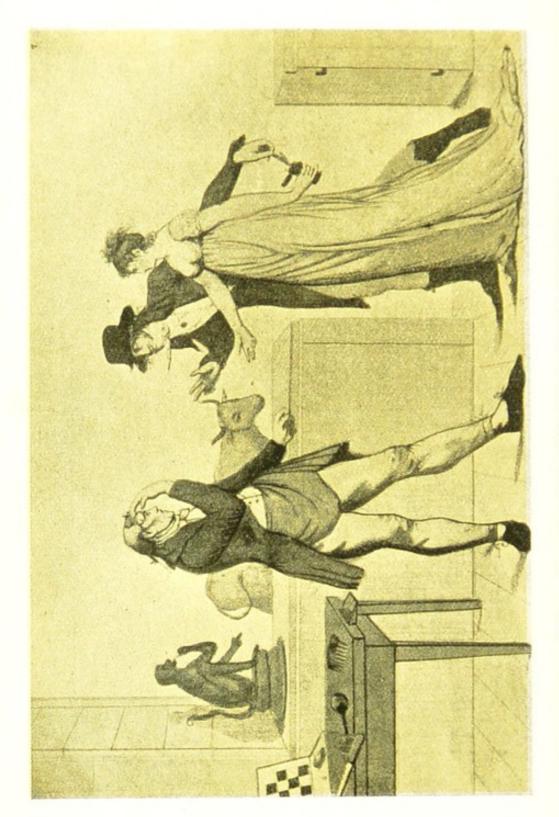
Of his "sweet garden of simples" the old herbalist discourses like a lover, the while he reviews with philosophic insight, the advantages of the laboratory associated with it.

The philosophy "The Physicke reader," he avers, "by of physicke gardens their meanes shall not only come furnished with authorities of the Antients and sensible probabilities for that he teacheth, but with real demonstrations also in many things which the

would never had reached unto."

reason of man, without the light of the fornace,

<sup>\*</sup> London, England



"THE ADMIRABLE EFFECTS OF VACCINATION"

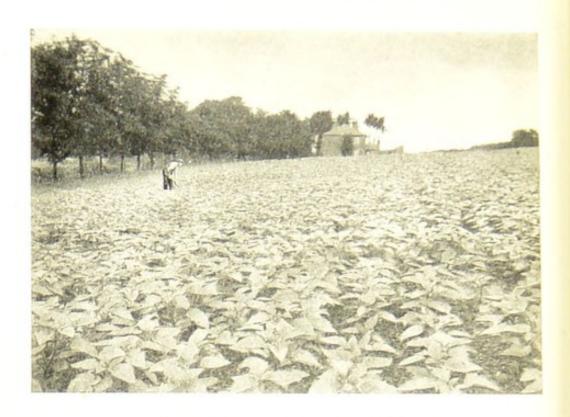


THE HERB GARDEN
'WELLCOME' MATERIA MEDICA FARM



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In one of the numerous prefaces to his *Book of Plants*, John Gerarde, author of the first English Herbal, speaks of erecting "the laboratory of an

industrious Chimist by the sweet garden of flourishing simples" in Holborn.\* Where the "sweet garden of flourishing simples" once was, the Chief Offices of Burroughs Wellcome & Co. now In the stand; and, hard by, the Wellcome footsteps Chemical Research Laboratories of Gerarde occupy a site in King Street. The day of gardens in Holborn is, however, long since past, and the 'Wellcome' Materia Medica Farm lies beyond the outer limits of the city's growth at Dartford, in Kent.

Of his "sweet garden of simples" the old herbalist discourses like a lover, the while he reviews with philosophic insight, the advantages of the laboratory associated with it.

The philosophy "The Physicke reader," he avers, "by of physicke gardens their meanes shall not only come furnished with authorities of the Antients and sensible probabilities for that he teacheth, but with real demonstrations also in many things which the

would never had reached unto."

reason of man, without the light of the fornace,

<sup>\*</sup> London, England

Gerarde's Herbal is notable as containing the first picture and description of the true potato plant, of Gerarde introduced into England in the year and his 1597. Born "at Namptwich in "Herbal" Cheshire, from whence he came to this city and betooke himself to Surgery . . . and therein attained to be a Master of that worthy profession," Gerarde died in 1607. The groundwork of his Book of Plants is stated to have been a translation of "Dodonaeus his Pemptades comming forth anno 1583."

To be true to purpose, the physic garden must, in essence and in fact, make a laboratory of the open fields, and of this idea Gerarde had some conception. Having as its object the study, not so much of the dead and dried herb as of the living plant and the conditions which influence its growth and the development of its properties, constant View-points experiment must needs be the medium of investigation. The mediæval view-point of disease as due to malign influences to be driven forth from the body by nauseous draughts, had led Luther to exclaim upon the "wonderful virtues" of "mere muck." To this crude conception succeeded the fanciful assumption that every plant bore some outward indication, in form or colour, of the disease it was supposed to cure-resulting, actually, in the practice of a confused polypharmacy. The acumen of the elder pharmacists consequently exhausted itself in minute pharmacognostic distinctions, and the evolution of interminable vegetable pharmacopœia. The plants, as grown, were accepted without question, innocent of assay, for the preparation of galenicals.

The isolation of alkaloids in the early part of last century exposed like a searchlight the futility of this, and revealed another and a deeper problem. The discrepancies in alkaloidal value and strength of active principles between different samples of the same plant, to all outward seeming alike, became evident; and, to these, pharmacognosy afforded no clue. A paper by Carr and Reynolds\* illustrates at once the importance of assay and the need of devising measures to secure uniformity of content.

It was found that one specimen of Squill was approximately three times as strong as another, while the amount of petroleum - ether - soluble alkaloid in Coca leaves varied from o'018 per cent. to o'79 per cent. discrepancies Aconite, Belladonna herb, Calabar bean, Digitalis, Ergot, Hyoscyamus, Jaborandi and Strophanthus all showed wide variation, and in the case of Cinchona there was a difference between the highest and the lowest grades, bought on the actual market, of 3.87 per cent. of quinine and cinchonidine. In so far as variability of action must, of necessity, result from variability of content, these figures are significant of much.

Pioneers in standardisation, as in other departments of pharmacy, Burroughs Wellcome & Co. found their efforts hampered from the outset by these discrepancies. Control must obviously begin at the sources of production. The introduction of 'Wellcome' Brand Standardised Galenicals, therefore, led them to establish a scientific Materia Medica Farm near the 'Wellcome' Chemical Works at Dartford, with the twofold object of supply and experimental research—again a conjunction reminiscent of Gerarde.

<sup>\*</sup> Carr and Reynolds, Pharm. Journ. (Eng.), 1908, 80, 542

By careful selection and propagation of the best stocks, by attention to the composition of the soil,

by adaptation of stocks to soil and and soil, site, by collection of the plants at their period of richest yield, and so forth, it was sought to eliminate factors of variability and to obtain the most uniform results from the choicest strains.

The major portion of this 'Wellcome' Materia Medica Farm is devoted to the cultivation of staples, but an experimental section is maintained in constant activity. Belladonna, for instance, has been shaded during growth by various coloured fabrics, and treated with different fertilisers. In the course of these researches it was ascertained that the yield of alkaloid is affected more by climatic conditions than by other alterations in environment, and that the superiority of English leaves is due to the English climate. Experi-Experimental ments with Broom tops, again, proved that the amount of sparteine contained in them varies according to the time of year, being low during the flowering and growing period, and increasing during autumn and winter, when reproductive activity has ceased. The Digitalis required for the production of 'Wellcome' Brand Concentrated Tincture of Digitalis and 'Wellcome' Brand Extract of Digitalis is also grown at the 'Wellcome' Materia Medica Farm. The result is that variations in character of the leaves have been Advantages reduced to those necessarily due to the variations of season from year to year. Added to which, errors due to the inclusion of faulty or untrue specimens are avoided.

Further advantages derived from this conjunction of experiment and research with the actual growing of the plants and the preparation of their galenicals are:—

(1) A drug may be expressed or worked up

immediately it has been collected.

(2) Herbs may be dried directly they are cut, before fermentation and other deteriorating enzymic changes have set in.

(3) Caprice on the part of collectors—who, in gathering wild herbs, are very difficult to control in the matter of adulteration, both accidental and

intentional—is prevented.

(4) It is possible to select and cultivate that particular strain of a plant which has been found by chemical and physiological tests to give the most satisfactory preparations. Notable instances are to be found in connection with Digitalis and Belladonna.

An article in the *Chemist and Druggist*, London (Eng.), of January 29, 1910, gives us an idea of

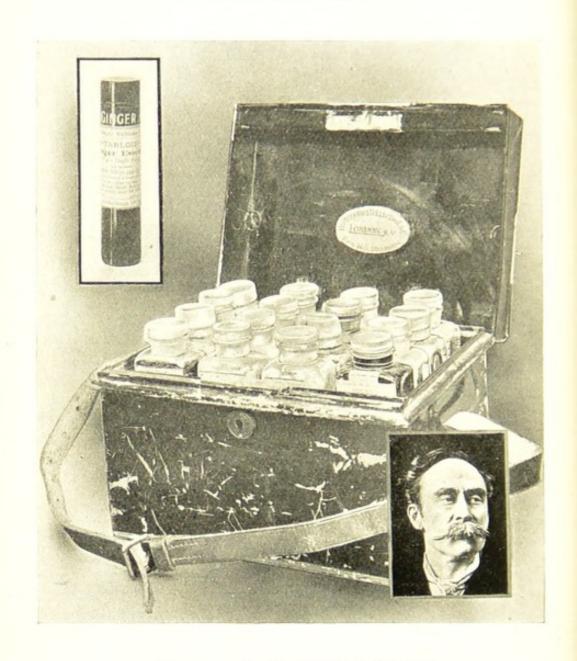
this latest of "physicke gardens," situated

"on an undulating slope, with here and there a clump of trees and a strip of wild woodland, between the river and the North Downs, hard by the little village of Darenth. No more ideal spot for a herb farm could have been chosen. It has shade, sunshine and moisture, and a fine loamy soil, varied by

sandier uplands.

"A visit to the farm shows that the greater part is devoted to the cultivation of staples; but a number of plots are used for experimental crops. Among such are meadow saffron (Colchicum autumnale), with its pale-purple flower. Lavender, peppermint, and French roses grow side by side. Senega and the unpretentious taraxacum, with its bright yellow petals, occupy other spaces. Ginseng, the root that plays so important a part in Chinese medicine, is also grown. Podophyllum peltatum, Scopolia atropoides, Datura meteloides, sea poppy (Glaucum luteum), and Grindelia robusta, are other plants that one does not usually find growing on a scale greater than the experimental; but the plots of Hydrastis canadensis are botanically and commercially the most interesting on the farm, in view of the fact that we are coming within measurable distance of the end of the natural supply from North America.

# 'TABLOID' MEDICAL EQUIPMENTS AT THE NORTH POLE APRIL 6, 1909



'TABLOID' MEDICINE CHEST supplied to

# REAR-ADMIRAL ROBERT EDWIN PEARY

Inset are photographs of Rear-Admiral Peary and one of eight tubes of 'Tabloid' products, the only medicines actually carried by him to the North Pole



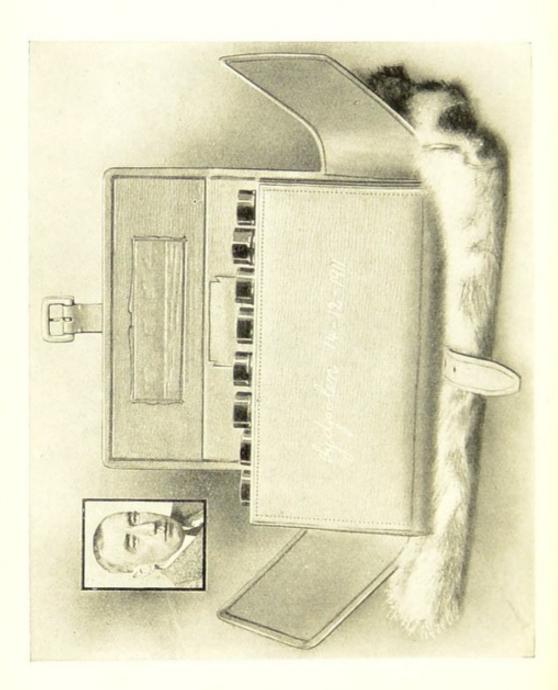
# MEDICAL EQUIPMENTS FROM POLE TO POLE

Northern ocean, it was natural that the deep fjords of Norway should harbour a race as fierce as the storms that beat upon their stern headlands. With no compass to guide them, with only the sun and the stars to steer by, and naught but their intuitive sea-lore to preserve them, "unconscious that they were specially brave," these sea-worn adventurers battled

with ice and storms and infinite hardships, and became, in Nansen's proud phrase, "the first explorers of the Northern Seas" and the The earliest earliest of ocean navigators. "They disexplorers covered the wide Arctic Ocean and its lands; they settled in the Scotch islands, found and colonised the Faroës, Iceland and Greenland—were the discoverers of the Atlantic Ocean and of North America," he tells us.

In the ninth century, there is mention of their Northern explorations in the Anglo-Saxon history of Alfred the Great.

In the tenth century, Norsemen from Thule,\* under Eric the Red, reached and settled Greenland; and it is practically certain that Norsemen discovered North America about 500 years before Cabot and Columbus. "South of Greenland is Helluland, next to it is Markland, and then it is not far to Wineland the Good . . . . " the old Icelandic geography read. Helluland (i.e. Slate or Stone-Land) is identified with Labrador; Markland (i.e. Woodland) with Newfoundland; while, beyond the legendary Wineland—the Hy-Breasail of the Irish, and the Fortunate Isles of Isidorus—"no habitable land is found in this ocean, but all that is more distant is full



'TABLOID' MEDICAL EQUIPMENTS AT THE SOUTH POLE

DECEMBER 14-17, 1911

TABLOID' MEDICINE CHEST supplied to

CAPTAIN ROALD AMUNDSEN

for his successful journey to the

SOUTH POLE

'Tabloid' products were the only medicines actually carried by Captain Amundsen to the South Pole.

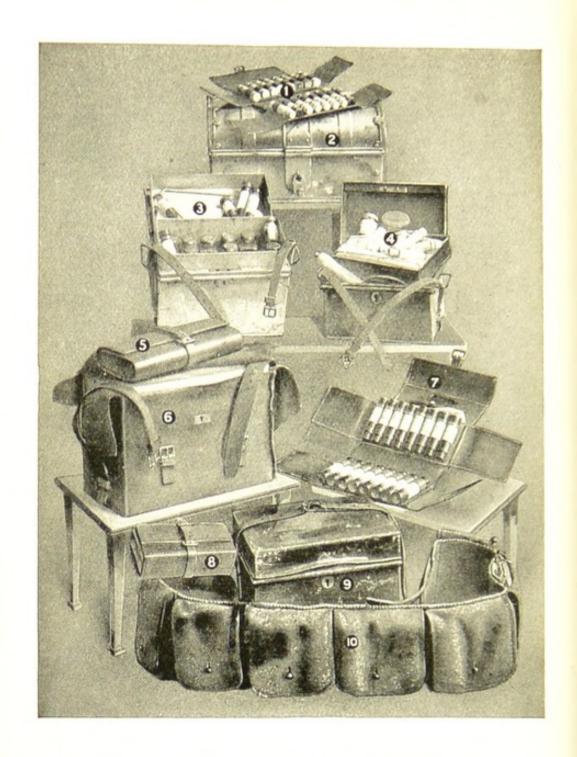
Inset is a photograph of Captain Amundsen

of intolerable ice and immense darkness. . . . . "
Thus Svein Estridssen, King of Denmark and nephew
of King Canute.

The "dark and curdled sea" which formed the outer boundary of the viking world, legendary though it be, had yet its natural prototype in the frozen ocean of the Arctic world, familiar to the early Norse adventurers; and the longed-for passage to the Wineland of the sagas has its historic West Passage parallel in the attempts to find a and Polar exploration "Indies," from which directly sprang attempts upon the Pole itself.

Beginning with Cabot, Frobisher and Davis, the illustrious line continues through Hudson and Baffin; through Cook in a later day; through Scoresby (who touched 81° 30' N.) and the Rosses to Parry, who, in 1827, made a determined effort to reach the North Pole from Spitzbergen, but was thwarted by the drift of the ice in 82° 45' N. The tragedy of Franklin (1847), and the magic of that heroic narrative of "white men marching southwards" like ghosts in the frozen Franklin silence-"and as they walked along they fell down and died "-fill with splendour the middle period of the nineteenth century. During the search for Franklin, McClure actually made the North-West Passage in 1852. In 1871, Hall, in the Polaris, reached 82° 16'. In 1878, Markham, in search of open Polar sea, attained Lat. 83° 20' N., by sleigh from Sir George Nares' expedition; and succeeding expeditions by Greeley and others added largely to the knowledge upon which was based the master-effort of Peary in 1909.

The hardships of the early explorers and the wastage from disease fill a mournful page in human history. Not until Parry's day losses (the Hecla, 1819), do we find mention of successful medical precautions being taken on any expedition. 'Tabloid' Medical Equipments made it possible for the explorer to carry—on his own person



RELIC 'TABLOID' MEDICINE CASES-POLAR EXPLORATION

r—Scottish National Antarctic medicine case. 2—Chest used during three years' exploration by the Jackson-Harmsworth Arctic Expedition. 3—A duplicate of the chest carried by the Duke of the Abruzzi's Polar Expedition. 4—Part of the complete medical equipment supplied by Burroughs Wellcome & Co. for the National Antarctic Expedition, 1901. 5—Andrée, on his historical attempt to reach the North Pole by balloon, carried a case of this design. 6—Medicine case

used by Wellman on his attempt to reach the North Pole in an airship. 7—Carried on the journey to the summit of Mount Erebus, and during the "Farthest South" journey, British Antarctic Expedition, 1907-9. 8—Case carried by the party which reached the South Magnetic Pole, British Antarctic Expedition, 1907-9. 9—Duplicate of the chest which formed part of Peary's equipment on his historic discovery of the North Pole. 10—Belt supplied to Nansen for his journey "Farthest North."

if need be-a sufficient supply of chosen remedies of real practical value. Nansen, for his famous voyage in the Fram, was supplied with 'Tabloid' Medical Equipments. Modern Medical First of the new vikings of modern Equipments Polar exploration, as daring as he was original, Nansen deliberately jammed his ship in the ice (September, 1893), in the hope of drifting across or near the Pole. In March, 1895, the Fram touched 84° N., and Nansen, "Farthest with a companion, left her, and with North" the aid of dogs and kayaks reached 86° 14'-his "Farthest North." The belts and other 'Tabloid' Equipments supplied to Nansen now form part of Burroughs Wellcome & Co.'s historic collection of outfits. Of this equipment the explorer reported in enthusiastic terms.

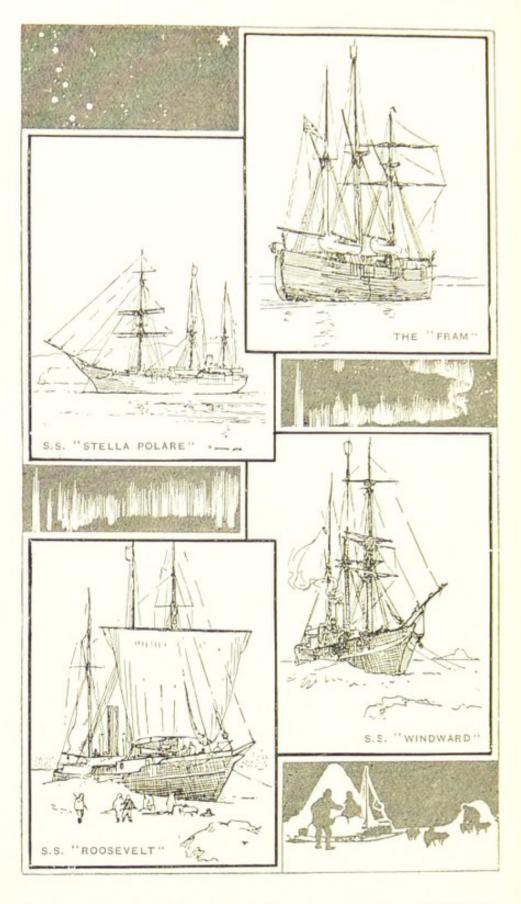
Nansen was eventually picked up by the Jackson-Harmsworth Expedition, of whose 'Tabloid' Medical Equipment the surgeon in charge reported:—

JacksonHarmsworth

"I find the 'Tabloid' drugs are most Expedition convenient, especially in circumstances such as we are placed in."

In 1907 Andrée, greatly daring, endeavoured to reach the North Pole by balloon, his sole medical outfit being a 'Tabloid' Medical Equipment. Starting from Spitzbergen on July 11, he vanished utterly; only his name and fame remain. A solitary carrier-pigeon bore the only message ever received from him.

Nansen's "Farthest North" was ultimately surpassed by Captain Cagni of the Italian Arctic Expedition commanded by the Duke of the Abruzzi, 1899–1900. Despite the fact that The Duke of the Abruzzi latitude 86° 33′ 49″ N. was reached, the 'Tabloid' Medicine Chests and Cases with which the Expedition was equipped, were brought back with their contents quite unaffected by the rigour of the climate.



SHIPS OF THE NANSEN, DUKE OF THE ABRUZZI,

JACKSON-HARMSWORTH, AND PEARY ARCTIC

EXPEDITIONS, ALL EQUIPPED WITH 'TABLOID'

MEDICAL EQUIPMENTS

In 1906 Peary penetrated beyond the 87th parallel, as far as 87° 06′ N., and in 1909 completed the task "for which," he says, "I had worked during twenty-three years; for which I had lived the simple life; . . . for which I had trained myself as for a race." Pioneered by the faithful Bartlett as far as the 88th parallel, Peary then pressed on alone with the pick of his dogs and his best Eskimos, and, on April 6, planted the Stars and Stripes at the North Pole, as determined by astronomical observations.

One of the eight tubes of 'Tabloid' products carried by Peary to the North Pole was presented by the distinguished explorer to Burroughs Wellcome & Co. on his 'Tabloid' Equipments at return. In a report, forwarded from the North Pole Etah, Greenland, Peary wrote: "Burroughs Wellcome & Co.'s 'Tabloid' Medicine Cases and supplies have proven invaluable." And in a previous report he conveyed his "appreciation of the wonderful compactness and utility of your products."

First at the North Pole with Peary, the successful discovery of the South Pole by Amundsen adds yet another record to the credit of 'Tabloid' Medical Equipments, North Pole. Amundsen having been supplied by First at the South Pole Burroughs Wellcome & Co. with a 'Tabloid' Outfit for his perilous Antarctic venture. "It was splendid in every way," he reported.

The narrative of Amundsen reveals a quiet, surprising courage, and an uncanny foresight and somewhat humorous outlook, in grappling with difficulties. He built 150 cairns on his way to the South Pole to serve as beacons and depôts for the return journey; he accumulated a store of 60,000 kilos of seal-meat at "Framheim"; he travelled far and fast on ski; and he found a new and comparatively easy route to hand. Dog-meat was voted "delicious."

Amundsen had acquired Nansen's old ship, the Fram. and his original intention was to fix her in the ice off the northern coast of Alaska and drift as near the North Pole as possible. Outward An astounding bound, news of Peary changed all his success plans, and quietly, without harking back, he decided to be first at the South Pole. In all the history of exploration nothing was ever more astounding in its complete success. Favoured by conditions, the Pole was attained, after a rapid journey from the base, at an elevation of 10,260 feet, on December 14-17, 1911. The travellers suffered somewhat from the effects of altitude, the Antarctic continent being mountainous. Of his 'Tabloid' Outfit Amundsen reports:-

"I have much pleasure in testifying to the efficiency of the 'Tabloid' Brand medical equipment with which you supplied me in 1910. All the medicines were most beautifully packed, and everything kept well.

"The brown leather case which I returned to you was the only one which I actually carried with me to the South Pole, and I have much pleasure in sending it back to you as a souvenir of my journey.

"I shall always consider one of your equipments as indispensable for either Arctic or Antarctic travels."

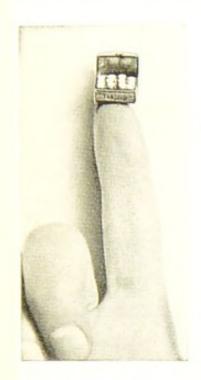
Jan Smunden

In his book *The South Pole*, Captain Amundsen notes that this equipment was unaffected by cold and damp, and was the only medical equipment supplied to the expedition which did not deteriorate in any way.

'TABLOID' BRAND MEDICAL EQUIPMENTS were the only medical equipments actually carried to the Poles by the successful explorers. 'Tabloid' Medical Equipments were, therefore, First at the North Pole and First at the South Pole.

No such record can ever be repeated. Made once and for all time—unique and unapproachable—the record stands, and of this honour, 'TABLOID' MEDICAL EQUIPMENTS can never be deprived.

The history of Antarctic exploration prior to Amundsen is brief, and in it 'TABLOID' MEDICAL



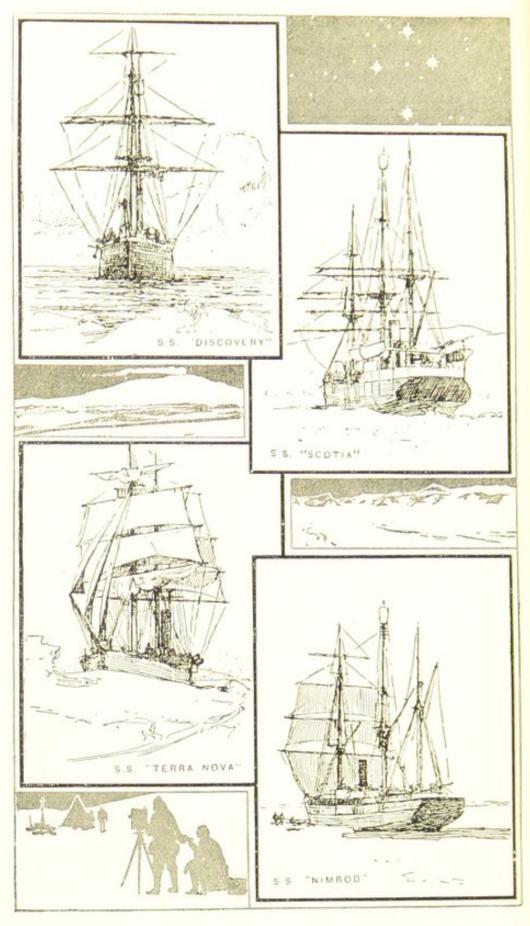
THE SMALLEST
MEDICINE CHEST
IN THE WORLD
This tiny gold medicine chest is fitted with twelve square medicine chest bottles containing 300 doses of 'Tabloid' Brand Medicaments, equivalent to 15 pints of fluid medicine

EQUIPMENTS vie, as it were, with their own record in the Arctic. The achievements of Captain Cook, who first crossed the Antarctic Circle in 1771; of Bellingshausen, who in 1821 first sighted Antarctic

land; and of Sir Previous explorers
Iames Ross, the

discoverer of the Great Ice Barrier, and of Mounts Erebus and Terror on the Antarctic land mass (1841), need not detain us. Not until 1895 did any human being set foot on this virgin "Continent of Snows," when Borchgrevink landed from the Southern Cross. In 1901, Scott, in the Discovery, passed the eastern-most point attained by Ross sixty years before, crossed the Great Barrier

which he found thirty miles farther south than in Ross's day—and advanced 380 miles by sledge towards the Pole. This arduous journey occupied three months, and the record latitude of 82° 17′ S. was reached. On sledge journeys the question of weight is of great moment. The traveller, on such occasions, must carry but the barest necessaries, and of these the lightest procurable. The medicine chest is an important item. Every drug carried must be of the utmost reliability, in the most compact state, and capable of withstanding aan extremely low temperature.



SHIPS OF THE NATIONAL ANTARCTIC EXPEDITION.

1901. THE SCOTTISH NATIONAL ANTARCTIC EXPEDITION, THE BRITISH ANTARCTIC EXPEDITIONS.

1907 AND 1911. ALL EQUIPPED WITH 'TABLOID'
MEDICAL EQUIPMENTS

To the enthusiasm of Sir CLEMENTS MARKHAM, K.C.B., then President of the Royal Geographical Society, the successful organisation of the Expedition is largely due. Referring to the 'Tabloid' Medical Equipment of the Discovery, he reports:—

"The Medical Equipment of the Exploring Ship of the National Antarctic Expedition was entirely supplied by Messrs. Burroughs Wellcome & Co., and proved in every

way most satisfactory.

"The few other drugs and preparations which were taken with the Expedition were only supplied for purposes of experiment, and can in no way be regarded as part of the

medical equipment."

Clements Whe arkham

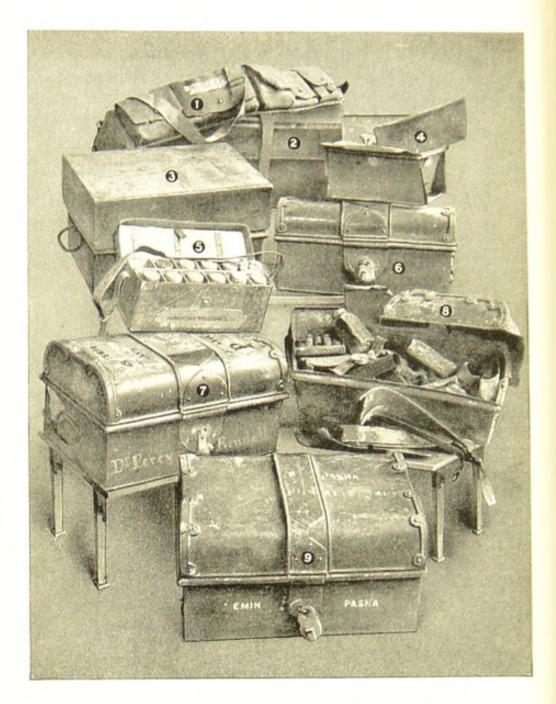
Dr. Edward Wilson who was in charge of some of the sledge journeys from the Discovery, reported:—

"Discovery ANTARCTIC EXPEDITION

"Though there was but little serious illness on the Discovery during the recent Antarctic Expedition, the 'Tabloid' preparations and the cases were put to a fairly rigorous test, not only in the ship, but on the various sledge journeys that were undertaken, during which they experienced temperatures as low as 68° below zero, and much rough handling, without any loss in efficiency and usefulness. Certain of the 'Tabloid' Ophthalmics were freely used for snow blindness, and were found to be most convenient."

It will be remembered that Dr. Wilson accompanied Captain Scott upon his second Antarctic Expedition, in 1910, and perished with his leader during the tragic return journey from the South Pole in 1912.

To the Scottish National Antarctic Expedition, covering a period of nearly two years, and comprising two separate voyages of the *Scotia*, belongs the distinction of having attained the latitude of 74° 1'S. The entire medical equipment of the Expedition was supplied by Burroughs Wellcome & Co., and



RELIC 'TABLOID' MEDICINE CASES-AFRICA

T—Medicine belt carried by Capt. Stairs throughout his Katanga Expedition. 2—The famous "Rear-Guard" medicine chest used during Sir H. M. Stanley's travels. 3—Extricated from the ruins after the Bandawe Mission House had been demolished by lightning; the contents that escaped damage were used for more than ten years afterwards. 4—Once the property of E. G. Glave. Supplied for a journey made concerning the great slave question of Central Africa.

5—Carried by Capt. Thomas Stevens on the expedition in East Africa to find Stanley. 6—Chest carried by Sir H. M. Stanley during the Emin Pasha Relief and other Expeditions. 7—Formerly the property of Dr. Percy Rendall, Principal Medical Officer, British Central Africa Administration. 8—Case carried by Frank Muxworthy, the famous African Caravan Leader, on three journeys through Uganda. 9—The last medicine chest supplied to Emin Pasha.

gave the utmost satisfaction, the Medical Officer of the Scotia reporting very favourably upon them.

In each instance the remaining contents of the medicine chests brought back were found to have retained their therapeutic activity, notwithstanding the rigour of the climate to which they had been subjected.

On his memorable voyage with the Nimrod, when the penetrated within ninety-seven miles of the South Pole, Sir Ernest H. Shackleton took with him as his sole medical equipment 'Tabloid' Medicine Chests and Cases, and made the following report, showing the efficiency and stability of 'Tabloid' medicines under the trying and difficult conditions of Antarctic exploration:—

"The British Antarctic Expedition, 1907-9, was equipped with a very complete Medical Equipment contracted for solely by Messrs. Burroughs Wellcome & Co., and consisting of 'Soloid' and 'Tabloid' Preparations, which are the only forms that can be conveniently carried and preserved under such conditions.

"All the 'Tabloid' products that remain are now in as good condition as when first handed over to my care two years ago.

Signed

BRITISH ANTARCTIC EXPEDITION, 1907-9
ERNEST H. SHACKLETON,

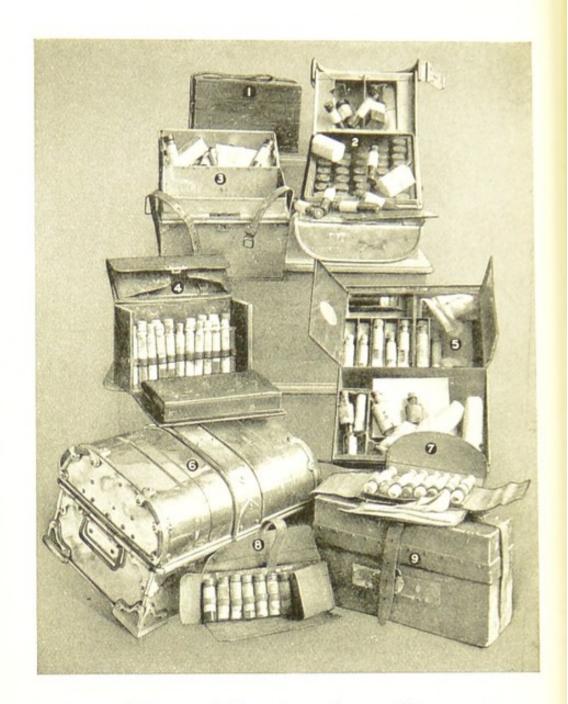
Commander"

ERIC P. MARSHALL, M.R.C.S., L.R.C.P.

Surgeon to the Expedition

#### IN AFRICA

Equipments have made the way of the explorer and the pioneer infinitely less perilous. It is hardly too much to claim indeed that, but for their aid, civilisation had still been impotently besieging the frontiers of disease that defend the interior of the Dark Continent. There were no roads, the climate was deadly, and teverything had to be carried pack-fashion on the



RELIC 'TABLOID' MEDICINE CASES-TRAVEL, ETC.

t—Harry de Windt's medical equipment, used on his travels in E. Siberia. 2—Chest taken by Ex-President Roosevelt on his recent shooting and hunting expedition in East Africa. 3—Chest carried by Lionel Declé on his three years' journey from the Cape to Uganda (6000 miles). 4—Mrs. Bishop (Miss Isabella Bird), in her book describing her extensive wanderings, highly commends this medicine case. 5—The medical equipment carried by Mrs. French Sheldon, F.R.G.S., on

her adventurous expedition throughout the entire Congo Free State.
6—Duplicate of medicine chest
taken by Sven Hedin on his unique
journey beyond the Himalayas into
the heart of Tibet. 7—Case carried
by R. L. Jefferson, F.R.G.S., on
his famous bicycle ride to Khiva.
8—Pocket-case carried by J. E.
Budgett Meakin. 9—Medicine
chest carried by Julius Price, of the
Illustrated London News, for
over 30,000 miles through various
climes.

human head and shoulders. With 'Tabloid' Medical Equipments, a single porter could carry medical supplies sufficient for a regiment of men. By their aid the European explorer was enabled to traverse deadly swamp and fever-ridden forest in safety. Stanley records the difficulty in these words:—

"When I think [he said in one of his lectures] of the dreadful mortality of Capt. Tuckey's Expedition in 1816, of the Niger Expedition in 1841, of the sufferings of Burton and Speke, and of my own first two expeditions, I am amazed to find that much of the mortality and sickness was due to the crude way in which medicines were supplied to travellers. The very recollection causes me to shudder."

Speaking at a later date of his wish to ameliorate the miseries of African explorers, he continues:—

"How it was to be done I knew not; who was to do it I did not know. But I made the acquaintance of Messrs. Burroughs Wellcome & Co. As soon as I came in sight of their preparations and their works, I found the consummation of my secret wish. On my later expeditions I had all the medicines that were required for my black men, as well as my white men, beautifully prepared, and in most elegant fashion arranged in the smallest medicine chest it was ever my lot to carry into Africa."

The mention of Stanley recalls Emin Pasha, Gordon's Governor of Equatorial Africa. The last medicine chest supplied to him was the product of Burroughs Wellcome & Co. In a pathetic report he writes:—

"I found the medicine chest you forwarded me fully stocked. I need not tell you that its very completeness made bound my heart. Articles like those could not be made but at the hand of the greatest artists in their own department. If any one relieved from intense pain pours out his blessings, they will come home to you.

"I should like to expatiate somewhat longer on the intrinsical value, but sickness preventing me to do so. I wish you to believe me,"

D. Famin Posto

This chest was looted by the Arabs when Emin was massacred in 1892, and was recaptured by Baron Dhanis, Commandant of the Congo Free State troops, after the battle of Kasongo. It was subsequently stolen by natives, but afterwards recovered near Kenia, in the Aruwhimi Dwarf Country, and returned to Burroughs Wellcome & Co.

Another famous chest, the "Rear-Guard" 'Tabloid' Medicine Chest, remained in the swampy forest regions of the Aruwhimi for nearly four years, and more than once was actually submerged in the river. The remaining contents were tested by the official analyst of the Lancet (London, Eng.), when it was brought back to England, and the 'Tabloid' medicaments declared to have perfectly preserved their efficiency.

The tale might be continued. It is the history, practically, of the medical equipments of every punitive expedition and of every explorer for nearly 30 years. A single extract must suffice. It is from the report of the Special War Correspondent of the Lancet (London, Eng.), a veteran of many campaigns:—

"It affords me infinite satisfaction to state that I have myself for some years dispensed, and have also seen administered by medical officers of both Naval and Military Services, Burroughs Wellcome & Co.'s 'Tabloid' preparations during the Sudan, campaigns Ashanti, Benin, and recent South African Campaigns. I cannot refrain from expressing my opinions as to their distinct and marked superiority over the medicinal preparations of former days. They are far more portable, very acceptable so far as the palate is concerned, far less liable to absorb damp on service during rapid changes of climate, are always found exact as to their dose-weight, and, what is of far more importance, retain their efficiency much longer than any other medicinal products I know of. The firm of Burroughs Wellcome & Co. are deservedly to be congratulated upon the marked scientific advance they have made in pharmaceutical reform."

If, to-day, the savagery of all the welter of humanity that still hides in the darkness of darkest Africa, is receding—ever so slowly—before the march of Science, something of Africa is surely due to the 'Tabloid' weapons of precision with which disease and death have been fought.

### IN TRAVEL AND EXPLORATION

THE true traveller is born. The call of the beyond is in his blood. It may be merely the chafing of the restless spirit for a strange sky and a wider horizon; or the deeper longing of The born the reflective mind for something "over traveller the hills and far away." Discontent has made travellers of some, desire for fame of others. In all, the result is action. Of one-a man of imagination and of magnetic qualities-Lord Morley has finely said, he was "a man with pity in him, with a sense of justice in him, with good-temper in him. ... He raised no ill-will anywhere." Dr. Sven Hedin, of whom these words were spoken, for two long years wandered about the wildernesses The "Roof of Tibet, tracing the "Mighty Mounof the tain Palisade" of the trans-Himalaya World" and exploring the "Roof of the World." His constant companion was a 'Tabloid' Medicine Chest, which stood him in good stead in illness and hardship, and even in the primrose paths of diplomacy. At Shigatse he made it his offering of friendship to the Tashi-Lama. We are indebted to Messrs. Macmillan, Dr. Sven Hedin's publishers, for permission to quote his account of the incident :-

"When we had conversed for two hours I made a move to leave him, but the Tashi-Lama pushed me back on to the chair and said, 'No, stay a little longer.' Now was the time to present my offering. The elegant English medicine chest was taken out of its silk cloth, opened and exhibited, 'TABLOID' MEDICINE CHEST

supplied to

EX-PRESIDENT ROOSEVELT

FOR HIS

HUNTING EXPEDITION

Z

AFRICA

Inset is a photograph of Ex-President Roosevelt

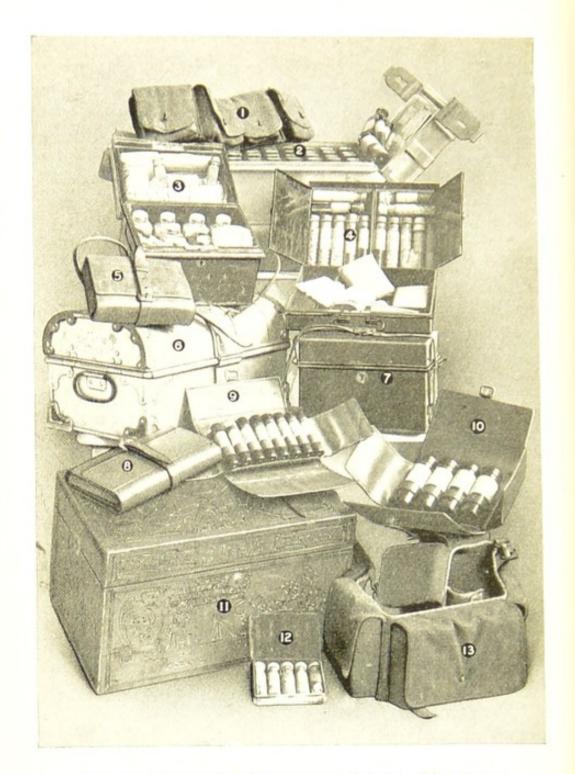


and excited his great admiration and lively interest; everything must be explained to him. The hypodermic syringe in its tasteful case, with all its belongings, especially delighted him. Two monks of the medical faculty were sent for several days running to write down in Tibetan the contents of the various 'Tabloid' boxes and the use of the medicines."

Such picturesque incidents do not stand alone in the annals of Burroughs Wellcome & Co. The U.S.A. Mission to Abyssinia in 1903—the first American expedition to that Empire—found their 'Tabloid' Medicine Chest "a highly In Abyssinia valued resource in time of trouble. It was carried on the back of a faithful domestic, rejoicing in a name which, being translated, means 'Slave of the Holy Trinity'"—reports a member of the Commission.

Again, Professor Garner, who studied at close quarters the habits of gorillas in the forests of the Gabuns, speaks affectionately of "my little 'Tabloid' Medicine Chest" as "a treasure more sacred than my rifle."

Ex-President Roosevelt, on his African expedition, took with him the 'Tabloid' Medical and Photographic Equipment, of which Lieut.-Col. Mearns reports:-"I wish to inform Some travellers of you that the equipment was most satisfactory in every way. The 'Tabloid' and 'Soloid' products, in addition to being convenient and compact, are extremely accurate and reliable. In this expedition the equipment never failed us, and is the most practicable it has been my pleasure to see or use." Many other travellers of distinction, including Glave, Muxworthy, Rendall, Captain Stairs, W. S. Caine, Mrs. Bishop (Miss Isabella Bird), and Mrs. French Sheldon, have been equipped with 'Tabloid' Medicine Cases, and have reported favourably on their portability and reliability.



RELIC 'TABLOID' MEDICINE CASES-WARFARE

1—One of the medicine belts used during the Spanish-American War. 2-One of the medicine chests used in the Ashanti Campaign, 1895-6. 3-G. W. Steevens carried this equipment through many campaigns and journeys. 4-A relic of many battles and sieges, formerly the property of W. Maxwell, war correspondent. 5-Cases of this design were used by British Colonial contingents during the South African War. 6-Part of the medical equipment of Greece during the war with Turkey, 1897. 7-Duplicate of the medical equipment of Bennet Burleigh, war correspondent. 8—The portable medical supply used on the Dongola Expedition. 9—A duplicate of the equipment used during the Anglo-Egyptian campaign in the Sudan. 10—A specially-designed case carried by the C.I.V. in the South African War. 11—A specially-designed chest, part of the medical equipment entirely supplied by Burroughs Wellcome & Co. for the Hospital Ship "Maine." 12—Pocket medicine case carried by Gen. Viljoen throughout the South African War. 13—Medicine belt used during the Benin Campaign.

#### IN WARFARE

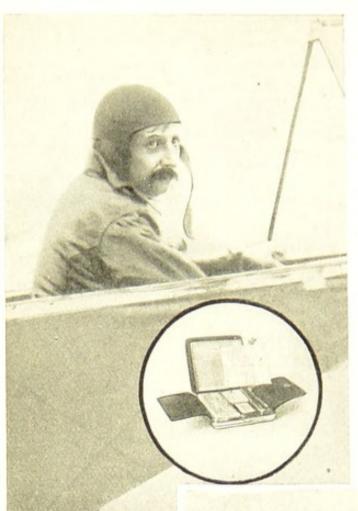
To Military Expeditions, 'Tabloid' Medical Equipments are as indispensable as the emergency ration. Their compression, compactness and convenience meet the first requirements of successful transport. In addition, they possess such advantages as purity, reliability and accuracy of dosage.

The human factor in warfare requires, for efficiency, first to be fed, next to have its hurts and ailments tended. It is a well-known axiom of military operations that disease kills factor and more men than do the bullets of the 'Tabloid' First-Aid Crimean War might have been averted had 'Tabloid' medicaments been available.

For more than a generation past, 'Tabloid' Medical Equipments have been used in every campaign of note. It is therefore impossible to deal with them in detail. During the war between the United States of America and Spain the utility of 'Tabloid' Outfits was tested and confirmed both in Cuba and the Philippines. In the campaigns of Kitchener, from Omdurman to South Africa, they have played a prominent part; as also in the Civil War in China.

In these days, no war seems to be complete without its war correspondents—than whom no keener judges of kit and equipment exist. The list of eminent journalists who have carried 'Tabloid' Cases includes among other world-famous names, those of Bennet Burleigh, Frederick Villiers, René Bull, Julius Price and William Maxwell, the late G. W. Steevens, and a host of others. Of her husband's 'Tabloid' Outfit Mrs. Steevens reports:—

Turk War, twice to the Soudan, India and lastly (well replenished by you) to South Africa."



### Louis BLERIOT

Louis Blériot was the first airman to fly across the English Channel (Calais-Dover, July 25, 1909), using a Blériot monoplane. Inset is the aviator's 'Tabloid' First-Aid Equipment. He reports as follows:—

"I find 'Tabloid' First-Aid Outfits most useful, and I have seen them in the hands of many of my friends, who, like me, think that no sportsman can run the risk of being without one."

Ellen

#### HENRI FARMAN AND HIS HYDROPLANE

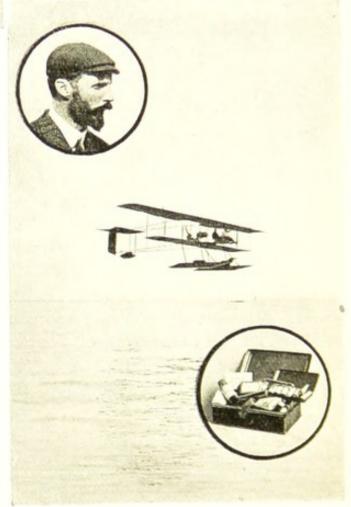
Equally famous as airman, designer, and constructor of aeroplanes and hydroplanes. Writing in Esperanto he reports:—

#### Translation

"I find it very necessary for every aviator to have with him one of your 'Tabloid' First-Aid Cases, and to know Esperanto. With these two he can go

anywhere.

"Fortunately I can say that I have not yet had a serious accident, but, working on the various apparatus, I have hurt myself several times, and was then glad to use the 'Tabloid' case, which saves much valuable time."



#### IN AVIATION

"FLYING resolves itself into a series of unforeseen incidents. It is then that we must command our nerves to avoid un drame," writes one of the greatest aeronauts of the day. "Even the least stirring of the air grips the machine and rolls it gently from side to side, while the stopping of the motor gives an acute if momentary pang of despair." Lost in the clouds, fogbound, tempest-tossed, compelled in his huge kite to rush onwards through the obscure in order to preserve equilibrium and remain aloft-not knowing when he emerges whether he will find himself above the plain-lands, the streets or the sea-the instant emergency constantly confronts him, far, possibly, from any hope of human aid. The margin of safety to life and limb must be increased, the margin not only by improving the powers of of safety the machine, but by the provision of the essentials of treatment in its most readily accessible form-compact, reliable, and practically featherweight. The airman who ventures aloft without 'Tabloid' First-Aid is foolhardy.

The first airman to deliver letters by aeroplane (Paris-Madrid) was Védrines. In The first crossing the Pyrenees, Védrines had to airman to rise to a height of over 6000 feet (2000 deliver letters metres) in order to surmount the pass of Somosierra. During this flight he was attacked by an eagle.

In India, Pécquet (February 18, 1911) carried a whole mail of 6000 letters and postcards from Allahabad across the Jumna to Aviation in India Naini. Pécquet and Keith-Davies will be remembered as the first airmen to fly in India. Of 'Tabloid' First-Aid, Pécquet reports:—

"J'ai toujours emporté avec moi l'équipement Premier-Secours 'Tabloid,' et puis vous confirmer qu'il m'a toujours été de très grande utilité aux petits accidents que j'ai eus."

- H Ricquet



#### "BEAUMONT"

Naval - Lieut. Jean Conneau, better known under the nom de vol of "André Beaumont." Won the European Circuit Race, and also the Daily Mail \$50,000 prize for the Circuit of Britain. He is seen examining "Tabloid" First-Aid, No. 706, concerning which he reports:—

"Grâce à sa légèreté et son format la petite boite 'Tabloid' First-Aid se recommande spécialement aux aviateurs."

1 Comma

### VEDRINES

Jules Védrines won the Paris-Madrid race in 1911, and was second in the Daily Mail \$50,000 Air Race in 1911. In Jan., 1912, he attained a speed of 105½ miles per hour—a world's record. The photograph shows the aviator handling his Tabloid' Pocket-Outfit, concerning which he reports:—

"Je considère votre Premier-Secours 'Tabloid' comme très utile. Son peu de volume en fait un modèle d'une extrême commodité."

J. Cedron



Mails have also been carried in England by Hamel and Hubert (between Hendon and Windsor), and in America by Earle Ovington.

'Tabloid' First-Aid Equipments were British and American used on all these journeys. Earle Aerial Posts Ovington, under the personal direction of Postmaster-General Hitchcock, carried the first U.S.A. Government Aerial Post.

Captain Sido also took a 'Tabloid' First-Aid Equipment with him when he set out to establish a rapid postal service in French Senegal.

These aerial experiments are interesting, The mail of the future though there is still much leeway to be made up before Kipling's daring forecast of a trans-Atlantic Aerial Post is realised.

Prominent among other aviators who have carried 'Tabloid' First-Aid Equipments during their flights are Blériot—first to fly the English Channel; Ely, who flew across San Francisco Harbour, landing like a bird on the deck of the cruiser Prominent aviators "Pennsylvania," and flying back again to land; as well as Weymann, who won the Gordon-Bennett Cup for America in 1911; Fowler, who was saved at Alta from serious injury to limb in falling, by the 'Tabloid' Equipment he carried in his pocket; McCurdy, Sopwith, Tabuteau, Garros, Hubert Latham and very many others, from whom reports have been received. Latham reported as follows of his 'Tabloid' Equipment:—

"Je tiens à vous dire combien m'a été utile votre trousse de Premier-Secours 'Tabloid.'

"Elle est si peu volumineuse que je n'hésite jamais à l'emporter en aëroplane, et m'a rendu service plusieurs fois, surtout dans les meetings d'aviation où un pansement rapide est souvent nécessaire. Bien à vous."

& fathan

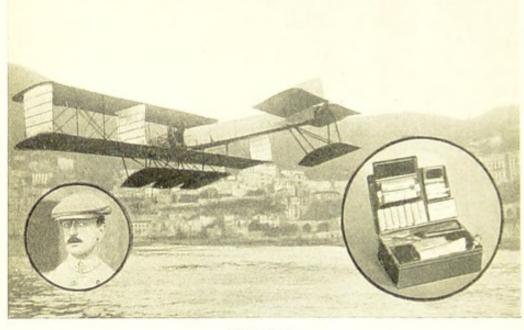


#### OVINGTON

Earle L. Ovington was
the first man to carry
the official United
States mail in America.
He was accompanied
by Postmaster-General
Hitchcock of the
U.S.A. Government
on one of his mailcarrying trips. Of his
'Tabloid' First-Aid
equipments Mr. Ovington reported as
follows:—

"I shall carry 'Tabloid' First-Aid Outfit with me on my trans-continental flight—the two smaller outfits on my aeroplane and the larger one on my special train. I have looked these outfits over very carefully and wish to compliment you upon the wonderful compactness and efficiency of your products."

Quei Lang



#### VOISIN

Gabriel Voisin was one of the pioneers of aeroplane and hydroplane construction, and is himself an accomplished aviator. He reports on his 'Tabloid' First-Aid Equipment as follows:—

"Nous avons bien reçu votre boîte de secours dont nous avons usé le

jour même.

"Je dois dire que votre pharmacie est parfaitement complète et qu'elle a sa place dans toutes les voitures automobiles, et tous les aéroplanes."

Julial Possing

Paulhan, after his race through darkness against time and his competitor, Grahame-White, in the tour de force flight from London to Manchester (Daily Mail \$50,000 prize, 1910), made the following report:—

"Je profite de cette occasion pour vous exprimer le plaisir que j'ai eu de porter avec moi durant le vol que j'ai fait de Londres à Manchester une trousse Premier-Secours 'Tabloid.'"

Haulin

Lieutenant Watkins, who was prevented by a broken leg from accompanying the Australian Antarctic Expedition, 1911, as official aviator, made the following report:—

"Fortunately for myself I have had no occasion to use the small 'Tabloid' First-Aid you so kindly sent me, but a friend of mine, Dr. Pointer, R.A., who has been in aviation for many years, had a bad fall on his monoplane and was badly cut in many places. Your small outfit came in most handy. I consider that the 'Tabloid' Equipment you sent me for the Vickers monoplane is quite the most useful thing one could desire."

The relative qualities and superiorities displayed, and the functions to be fulfilled respectively by heavier-than-air and lighter-than-air machines, continue to excite expert controversy, and even to influence the policy of governments. The rôle of the The evolution of a dominant type "dirigible" remains upon the knees of the gods.

Whatever issue may emerge, the endeavour of Burroughs Wellcome & Co. will always be to maintain the historic association of their products with the

Great in conception was Wellman's effort to cross the Atlantic, on which the explorer brought

evolution of scientific airmanship.



## GRAHAME-WHITE

Claude Grahame-White made a plucky attempt to win the first Daily Mail \$50,000 prize, for a flight from London to Manchester in 1910. He won the Gordon-Bennett Cup for England at Belmont, N.Y., in the same year, on a Blériot monoplane. Made the first crossing of the Channel by hydro-aeroplane, July 6, 1912. Con-cerning his 'Tabloid' Equipment, he reports:-

" . . . I consider no aviator should be without one."



#### CODY

S. F. Cody has done important work for the British War Office, and uses aeroplanes of his own design. Winner of the British Michelin Trophies in 1910 and 1911, the British Em-No. 2, in 1911, and the British War Office Competition, 1912. He carries 'Tabloid' First-Aid as his medical equipment. Mr. Cody reports as follows:-

"The 'Tabloid'
First-Aid Case has
always been in its
place on my machine
and I have found
the contents of inestimable value on
numerous occasions."

The arrow indicates the position of the 'Tabloid' First-Aid.



to bear immense pains and forethought, and all the experience of his Arctic travels. The result revealed a task pre-destined to ultimate achievement. Wellman reports:—

"We are glad to inform you that your 'Tabloid' Medical Equipment was the only one carried in the airship "America" during one thousand miles flight over the Atlantic Ocean. We had several occasions to use its contents for minor troubles, and found it complete and wholly satisfactory, which was but repeating the experience I have had with your equipments in my expeditions to the Arctic regions."

# Walter Wallman

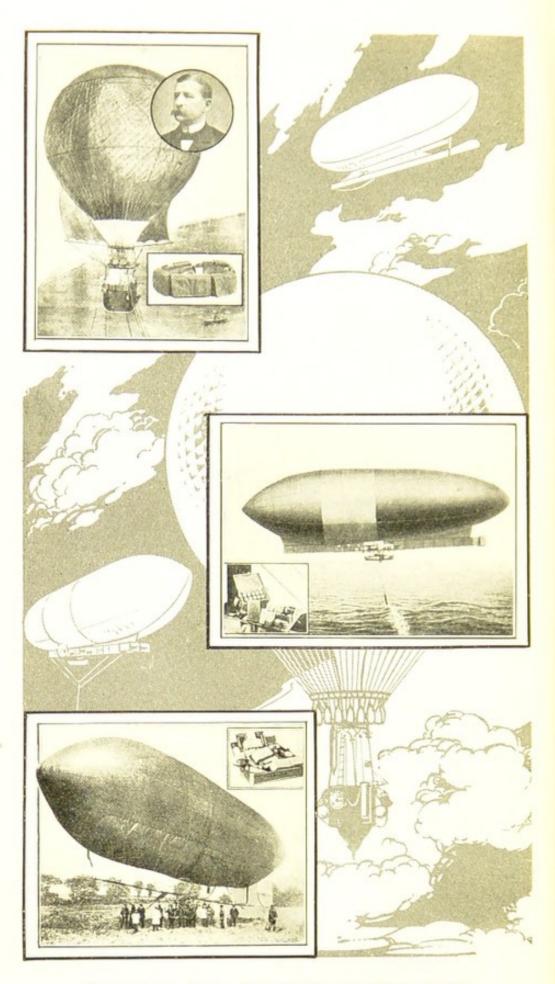
Mr. Wellman here refers to his 'Tabloid' Equipment for the dirigible "America," with which he had proposed to fly to the North Pole from Spitzbergen.

The British record for a long-distance balloon voyage is held by Messrs. Gaudron, Maitland and C. C. Turner, who, on November 18, 1908, started from the Crystal Palace, London, and on the following day alighted at Mateki Derevni, Novo Alexandrovsk, Russia, having travelled 1117 miles in 31½ hours. Their sole medical equipment was a 'Tabloid' Medicine Case, of which Mr. Turner reports:—

"The 'Tabloid' First-Aid Aeronaut's Outfit proved most valuable during our balloon voyage to Russia. We used the 'Vaporole' Ammonia with excellent results when suffering from the presence of gas in the air. But for the other remedies we should probably have suffered considerably. In future voyages I shall certainly take a 'Tabloid' First-Aid Outfit."

> (horles (. Durner (Cort. Av.)

'Tabloid' Medicine Chests and 'Tabloid' First-Aid Equipments have also been supplied to Willows, Count Zeppelin, and many other aeronauts.



BALLOON AND AIRSHIPS FITTED WITH
'TABLOID' MEDICAL EQUIPMENTS

I—Andree's Polar Balloon 2—Wellman's Airship "America"
3—Willow's Airship

# HYPODERMIC POCKET-CASES 'TABLOID' BRAND [ B. W. & Co. ]

Special Designs, the property of Burroughs Wellcome & Co.

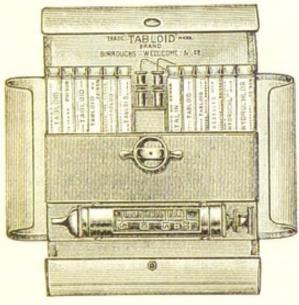
The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

'TABLOID' Hypodermic Pocket-Cases provide complete armamentaria for hypodermic work. The whole object of hypodermic medication is to administer drugs For the in full physiological dosage by the shortest waistcoat route. It is, therefore, par excellence, the pocket method for emergency purposes. For the same reasons it follows that the highest accuracy of dosage combined with the utmost purity of the drug administered is essential. 'Tabloid' Hypodermic Products possess all these qualities and are compact, convenient to use, and free from the disadvantages of stock solutions, which may undergo rapid changes and become septic and irritating. They retain their strength, and remain unaltered for many years in any climate. A full equipment of hypodermic drugs, together with syringe and needles, may, by means of the 'Tabloid' Hypodermic

Hypodermic 'Tabloid' Brand Pocket-Cases are issued in gold, silver, gun-metal, nickel-plated metal, or aluminium, and in a great variety of plain and fancy leathers. Each contains a B. W. & Co. Hypodermic Syringe with needles, and from five to fifteen tubes of 'Tabloid' Brand Hypodermic products, etc.

Outfit, easily be carried in the waistcoat pocket.

# NO. 3. HYPODERMIC 'TABLOID' BRAND POCKET-CASE



In Cowhide, Pigskin, Crocodile, Morocco, Seal and other fine leathers. Fitted with twelve tubes of 'Tabloid' Hypodermic products, a B. W. & Co. All-Glass Aseptic Hypodermic Syringe and two regular steel needles.

No. 3. Hypodermic 'Tabloid' Brand Pocket-Case Measurements: 31 × 23 × 3 in.

# No. 7. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE

With special detachable aseptic frame of novel design, and revolv-

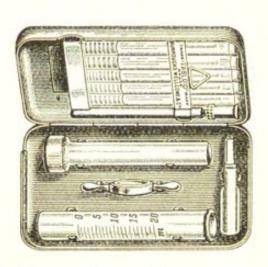


No. 7. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE Measurements:  $3\frac{1}{2} \times 3\frac{1}{8} \times \frac{7}{8}$  in.

ing rack (nickelplated). Fitted with twelve tubes of 'Tabloid' Hypodermic products. a B. W. & Co. All-Glass Aseptic Hypodermic Syringe, with two regular steel needles, etc. This Case, after the removal of the tubes of Hypodermic products, may be sterilised with ease. In Aluminium, or in Solid Silver.

# No. 10. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE

This Case is a model of compact completeness. It is made of nickel-plated metal, each edge and corner being smoothly rounded. It contains a B. W. & Co. All-Glass Aseptic Hypodermic Syringe, with



No. 10. ASEPTIC HYPODERMIC

'TABLOID' BRAND POCKET-CASE

Measurements:  $2\frac{1}{2} \times 1\frac{5}{8} \times 1$  in.

detachable nickel-plated fingergrip, and two regular steel needles enclosed in a protective tube.

Each part of the syringe is separately held in a holdfast clip.

The tubes of 'Tabloid' Hypodermic products, five in number, are carried in a hinged rack, which securely holds them when the case is closed, and which, when swung outwards, allows of the easy withdrawal of the desired tube. Complete with doeskin cover.

# NO. 15. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE

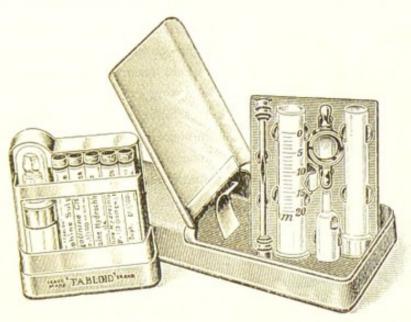
In polished metal, with doeskin cover. Measurements:  $4 \times 3 \times \frac{7}{6}$  in. Fitted with a B. W. & Co. All-Glass Aseptic Hypodermic Syringe, with two platino-iridium needles and one exploring needle, eight tubes of 'Tabloid' Hypodermic products, two 'Vaporole' products (for hypodermic use), a stoppered bottle, sterilising cup, forceps, etc. The syringe is held in a separable tray in which it may be sterilised.

In place of a spirit-lamp a tube of inflammable products is provided.

One of these may be burned for sterilising the syringe or solution.

### No. 20. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE

Fitted with ten tubes of 'Tabloid' Hypodermic products, a small glass phial, stoppered and capped, for ether, a B. W. & Co. All-Glass Aseptic Hypodermic Syringe (each part securely held in a separate clip), with two steel needles in a protective tube, finger-grip, etc. In nickel-plated metal, complete with doeskin cover.

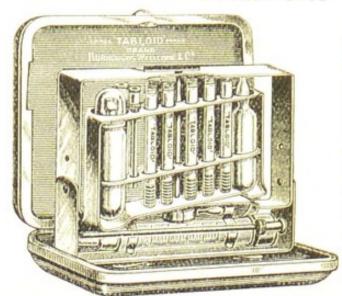


No. 20. Aseptic Hypodermic 'Tabloid' Brand Pocket-Case Measurements:  $4\frac{1}{2} \times 1\frac{3}{4} \times \frac{3}{4}$  in.

## NO. 21. HYPODERMIC 'TABLOID' BRAND POCKET-CASE

Measurements:  $3\frac{7}{8} \times 3\frac{1}{8} \times 1\frac{1}{4}$  in. Fitted with nine tubes of 'Tabloid' Hypodermic products, a B. W. & Co. All-Glass Aseptic Hypodermic Syringe, with two steel needles, a small phial, glass-stoppered and capped, for sterilised water, capsule of ether, etc. In Morocco and other fine leathers.

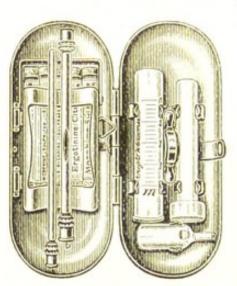
### No. 23. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE



In Aluminium, Gunmetal or in Solid Silver,
with special detachable
nickel-plated aseptic
frame and revolving rack.
Contents same as those
of No. 21 Case, with
the addition of a steel
exploring needle. This
Case, after the removal
of the tubes of 'Tabloid'
Hypodermic products,
may readily be sterilised.

No. 23. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE Measurements:  $3\frac{1}{2} \times 3\frac{1}{8} \times \frac{2}{8}$  in.

# No. 40. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE (The Mussel Shell)



A particularly efficient and convenient pocket - case. Its component parts are held securely in clips and rack. The spring catch, of improved design, is most effective in use, whereby maximum security is attained. The case contains a B. W. & Co. All-Glass Aseptic Hypodermic Syringe, with detachable finger-grip, two regular steel needles, one exploring needle, and five tubes of 'Tabloid' Hypodermic products, etc. In nickel-plated metal, complete with doeskin cover.

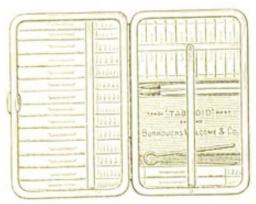
No. 40. ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE (The Mussel Shell) Measurements:  $3\frac{1}{2} \times 1\frac{3}{8} \times 1$  in.

### No. 45. Quinine Injection 'Tabloid' Brand Pocket-Case

Measurements:  $5\frac{1}{4} \times 2\frac{7}{8} \times 1\frac{1}{4}$  in. Fitted with an All-Metal Hypodermic Syringe, min. 20, with two steel needles, two  $\frac{1}{2}$  oz. bottles, stoppered and capped, spirit-lamp, sterilising cup, sterilising tray, box for matches, etc., wind-shield, forceps, one tube 'Soloid' Corrosive Sublimate, and three tubes 'Tabloid' Hypodermic Quinine Bihydrochloride. In nickel-plated metal, complete with doeskin cover.

# HYPODERMIC AND OPHTHALMIC POCKET-CASES 'TABLOID' BRAND [# B. W. & Co.]

No. 80. Hypodermic and Ophthalmic 'Tabloid' Brand Pocket-Case (The "British Army Regulation")



In Aluminium. Contains thirteen tubes of 'Tabloid' Hypodermic products, ten tubes of 'Tabloid' Ophthalmic products, two camel-hair brushes, a pair of minute forceps, and a card showing list of contents. Being easily carried in the waistcoatpocket, this Case is extremely well adapted for emergency use.

No. 80. Hypodermic and Ophthalmic 'Tabloid' Brand Pocket-Case (The "British Army Regulation") Measurements:  $3\frac{1}{4} \times 2\frac{1}{4} \times \frac{3}{4}$  in.

# OPHTHALMIC POCKET-CASES 'TABLOID' BRAND [# B. W. & Co.]

Special Designs, the property of Burroughs Wellcome & Co.

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co.

'TABLOID' Ophthalmic Pocket-Cases are the most compact and complete equipments for ophthalmic work. In a space of two or three cubic inches they contain supplies of active and accurately-divided ophthalmic products, solution-dropper, camelhair brushes, etc., etc.

### No. 91. ASEPTIC OPHTHALMIC 'TABLOID' BRAND POCKET-CASE

In nickel-plated metal. Measurements:  $2\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{4}$  in. Fitted with nine tubes of 'Tabloid' and 'Soloid' Ophthalmic products in nickel-plated rack, vulcanite rod, solution-dropper, mortar, pestle and two camel-hair brushes. The Case, after the removal of the contents, may readily be sterilised. Complete with doeskin cover.

# No. 92. ASEPTIC OPHTHALMIC 'TABLOID' BRAND POCKET-CASE (The Mussel Shell)



In nickel-plated metal. Fitted with seven tubes of 'Tabloid' Ophthalmic products, mortar, pestle, vulcanite rod, solution-dropper and two camelhair brushes. The shape and size of this Case make it specially suitable for carrying in the waistcoat-pocket. After removal of the contents, the Case can readily be sterilised. Complete with doeskin cover.

No. 92. ASEPTIC OPHTHALMIC 'TABLOID' BRAND POCKET-CASE (The Mussel Shell) Measurements:  $2\frac{1}{2} \times 1\frac{1}{8} \times \frac{5}{8}$  in.

## MEDICINE POCKET-CASES, 'TABLOID' BRAND

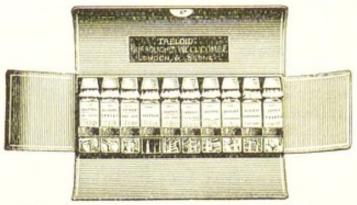
Special Designs, the property of Burroughs Wellcome & Co.

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co.

'TABLOID' Medicine Pocket-Cases are compact equipments of pure, active drugs, divided into accurate doses, ready for administration. They enable practitioners to have emergen- always with them an equipment of reliable medicines specially suitable for emergency purposes. 'Tabloid' Pocket-Cases are a recognised essential in the equipment of physicians practising in country districts.

When weighing and measuring are impossible, and the carriage of liquids impracticable, the convenience and the extreme portability of 'Tabloid' Medicine Pocket-Cases, which enable the physician to dispense emergency medicines practically at the bedside, will be fully appreciated.

#### NO. 115. 'TABLOID' BRAND MEDICINE POCKET-CASE



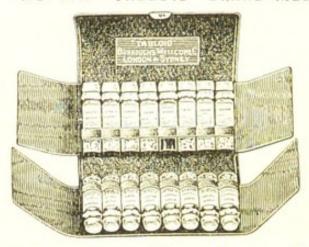
No. 115. 'TABLOID' BRAND MEDICINE POCKET-CASE

Measurements:  $9\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$  in.

Contains ten ½ oz.

phials filled with
'Tabloid' Brand products, etc. In Seal,
Pigskin, Cowhide,
Morocco and other
fine leathers.

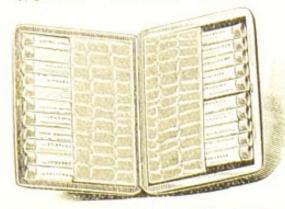
#### NO. 117. 'TABLOID' BRAND MEDICINE POCKET-CASE



This Case, which is somewhat larger and more comprehensive than the No. 115
Case, contains sixteen ½ oz. phials of 'Tabloid' Brand products, etc. In Cowhide, Pigskin, Crocodile, Morocco and other fine leathers.

No. 117. 'TABLOID' BRAND MEDICINE POCKET-CASE Measurements :  $7\frac{1}{2} \times 4\frac{1}{2} \times 2\frac{5}{8}$  in.

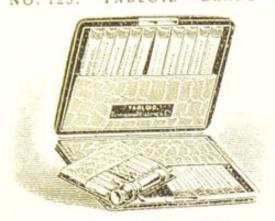
## No. 124. 'TABLOID' BRAND MEDICINE POCKET-CASE



No. 124. 'TABLOID' BRAND MEDICINE POCKET-CASE

Measurements: 51 × 4 × 11 in.

NO. 125. 'TABLOID' BRAND MEDICINE POCKET-CASE



No. 125. 'TABLOID' BRAND MEDICINE POCKET-CASE

Measurements: 5½ × 4 × 1½ in.

Specially fitted for emergency purposes with fourteen tubes of 'Tabloid' Brand products, and a removable tray containing an equipment of twelve tubes of 'Tabloid' Hypodermic products, a B. W. & Co. All-Glass Aseptic Hypodermic Syringe and two regular steel needles. In Cowhide and other fine leathers.

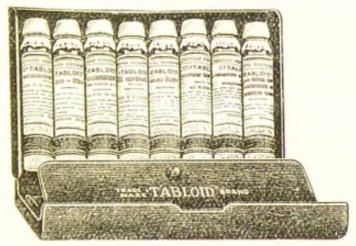
sufficient to combat a variety

of contingencies.

Fitted with from sixteen to twenty-four tubes of 'Tabloid' Brand products, according to size of products. In Seal, Crocodile, Morocco and other fine leathers. This Case was specially designed for conveniently carrying in the breast pocket, on ordinary occasions, a stock of medicines

NO. 126. 'TABLOID' BRAND MEDICINE POCKET-CASE With the exception that it contains a No. 3 'Tabloid' Brand Hypodermic Case instead of the removable tray, this Case is the same as No. 125.

NO. 133. 'TABLOID' BRAND MEDICINE POCKET-CASE



An ideal pocketcase, which closes without straps or other external fastening. Metal body, covered with black Morocco or Cowhide. Contains eight ½ oz. phials of 'Tabloid' Brand products, etc., and wallet for papers.

No. 133. 'TABLOID' BRAND MEDICINE POCKET-CASE Measurements: 6 \( \frac{1}{2} \times 4 \frac{1}{4} \times 1 \frac{1}{4} \times in.

#### NO. 137. 'TABLOID' BRAND MEDICINE SADDLE-CASE



No. 137. 'Tabloid' Brand Medicine Saddle-Case

In Cowhide or Pigskin. Measurements:  $7\frac{1}{2} \times 4\frac{3}{8} \times 2\frac{1}{2}$  in. Fitted in a similar manner to No. 117

Case (see page 164), with sixteen  $\frac{1}{2}$  oz. phials of 'Tabloid' Brand products, etc.

#### No. 139. 'TABLOID' BRAND MEDICINE SADDLE-CASE

Similar to No. 137 Case, but fitted with feather-weight tubes. Measurements:  $7\frac{1}{4} \times 4\frac{1}{2} \times 2\frac{1}{2}$  in. In Cowhide or Pigskin.

#### NO. 141. 'TABLOID' BRAND MEDICINE POCKET-CASE

In Morocco leather. Measurements:  $7\frac{3}{4} \times 4\frac{1}{4} \times 2\frac{3}{8}$  in. Fitted with fifteen  $\frac{1}{2}$  oz. phials of 'Tabloid' Brand products, and a compartment containing small boxes for the physician's use in distributing requisite medicaments. Design similar to No. 117 Case.

#### NO. 143. 'TABLOID' BRAND MEDICINE SADDLE-CASE

An ideal medicine saddle-case. Measurements:  $8 \times 3 \times 4\frac{1}{4}$  in. It is so designed that, when closed, neither dust nor rain can enter. Two metal rings firmly fixed to the back of this equipment allow of its easy attachment to a saddle. Fitted with sixteen phials of 'Tabloid' and 'Soloid' Brand products and a removable tray for instruments, etc.

## CYCLE, CARRIAGE AND MOTOR-CAR CASES MEDICAL EQUIPMENT CHESTS, ETC.

### 'TABLOID' BRAND

[# B. W. & Co.]

Special Designs, the property of Burroughs Wellcome & Co.

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

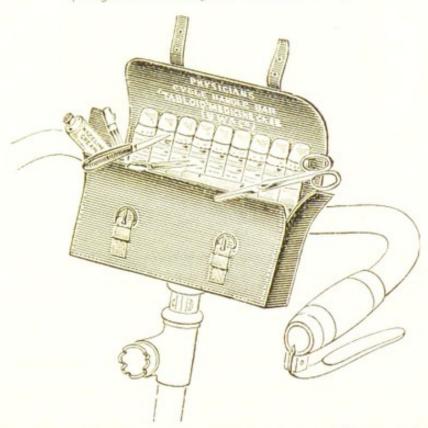
'TABLOID' Cycle, Carriage and Motor-Car Cases and Medical Equipment Chests contain 'Tabloid,' 'Soloid' and other fine products of B. W. & Co., minor surgical instruments and sundry emergency dressings. A great variety is prepared to meet the requirements of professional men in home practice, according to the extent and the special character of their particular requirements.

## CYCLE, ETC., MEDICINE CASES, 'TABLOID' BRAND -continued

'Tabloid' Medical Equipment Chests and Cases provide complete portable dispensaries for practitioners in distant stations, missionaries, explorers and expeditions of all kinds. For such purposes they are the only really travellers, satisfactory form of medical equipment, and have explorers, explorers, expeditions, been universally adopted. In addition to full missions, etc.

supplies of accurate doses of permanent and reliable products, these equipments contain minor surgical instruments and dressings.

## No. 200. 'TABLOID' BRAND MEDICINE CASE (Physician's Cycle Handle-Bar)



No. 200. 'TABLOID' BRAND MEDICINE CASE (PHYSICIAN'S CYCLE HANDLE-BAR)

In black enamelled Cowhide. Measurements:  $8\frac{1}{4} \times 2\frac{3}{4} \times 4\frac{3}{8}$  in. Fitted complete with nine  $\frac{1}{2}$  oz. phials of 'Tabloid' Brand products, etc., minor surgical instruments and sundry emergency dressings. Weight, about  $1\frac{1}{2}$  lb.

### No. 202. 'TABLOID' BRAND MEDICINE CASE (Physician's Cycle Stay-Bar)

In black enamelled Cowhide. Measurements: 10 × 23 × 5 in. Fitted complete with twelve ½ oz. phials of 'Tabloid' Brand products, etc., minor surgical instruments and dressings. Similar in design to No. 200 Case.

## NO. 206. 'TABLOID' BRAND MEDICINE CHEST (As carried by Mr. Thos. Stevens)

A reduced facsimile of No. 208 Chest (see below). Measurements:  $13\frac{1}{2} \times 4\frac{1}{4} \times 7$  in. Made of dressed and varnished raw-hide. Fitted with twelve  $2\frac{1}{2}$  oz. stoppered bottles of 'Tabloid' and 'Soloid' Brand products, minor instruments, dressings, etc.

#### No. 208. 'TABLOID' BRAND MEDICINE CHEST



No. 208. 'TABLOID' BRAND MEDICINE CHEST

Made of dressed and varnished raw-hide; very light, portable and durable. Measurements: 15½ × 5¼ × 9 in. Fitted with fourteen 4 oz. stoppered bottles of 'Tabloid' and 'Soloid' Brand products, instruments, dressings, etc.

#### NO. 209. 'TABLOID' BRAND MEDICINE CASE

In Morocco leather, Cowhide or Pigskin. Measurements: 10 × 5½ × 6½ in. Contains nine 1 oz., twenty-four ½ oz. and thirteen 2 dr. phials of 'Tabloid' and 'Soloid' Brand products; medicine measure, extra pockets, and loops for instruments; twelve tubes of 'Tabloid' Hypodermic products, a B. W. & Co. All-Glass Aseptic Hypodermic Syringe, two regular steel needles, etc.

#### No. 211. 'TABLOID' BRAND MEDICINE CASE

A very neat and durable case, with contents arranged so as to be instantly available for use. Measurements: 11½ × 5¾ × 5½ in. Contains nine 1 oz., twenty-four ½ oz., and twelve 2 dr. phials. Fitted with 'Tabloid' and 'Soloid' Brand products, twelve tubes of 'Tabloid' Hypodermic products, a B. W. & Co. Patent Nickel-plated Hypodermic Syringe, with two regular steel needles, etc. In Cowhide or Morocco leather.

## NO. 216. 'TABLOID' BRAND MEDICINE CASE

In Cowhide or Morocco leather. Measurements:  $10\frac{1}{4} \times 5\frac{3}{4} \times 3\frac{3}{6}$  in. Fitted with nine 1 oz. and twenty-four  $\frac{1}{2}$  oz. phials of 'Tabloid' and 'Soloid' Brand products, loops for minor instruments, wallet for books, papers, etc.

## NO. 219. 'TABLOID' BRAND MEDICINE CASE

In Morocco leather. Measurements: 13½ × 6 × 6¼ in. Metal frame, Contains eight 2 oz. stoppered, ten 1 oz., twelve 6 dr., eight 4 dr. and ten 2 dr. corked phials. The rows of phials are arranged to fall so as to show the labels. Fitted with 'Tabloid' and 'Soloid' Brand products, twelve tubes of 'Tabloid' Hypodermic products, a B. W. & Co. Patent Nickel-plated Hypodermic Syringe, with two regular steel needles, etc.

## NO. 220. 'TABLOID' BRAND MEDICINE CASE

In Morocco leather or Cowhide. Measurements: 13\frac{3}{4} \times 5\frac{3}{4} \times 9\frac{1}{4} in. Phials arranged in tiers to display labels. Contains eight 2 oz. stoppered, twelve 1 oz., fourteen 6 dr., and sixteen 4 dr. phials of 'Tabloid' and 'Soloid' Brand products, twelve tubes of 'Tabloid' Hypodermic products, a B. W. & Co. Patent Nickel-plated Hypodermic Syringe, two regular steel needles, space and loops for instruments, etc. Similar in design to No. 221 Case.

### NO. 221. 'TABLOID' BRAND MEDICINE CASE

In extra finish Cowhide, Morocco or Crocodile, and in Pigskin. Measurements: 14 × 6 × 9½ in. Fitted in the same way as No. 220 Case, with the addition of nine 2 dr. phials of 'Tabloid' and 'Soloid' Brand products, and a glass-stoppered and capped ether bottle.

## NO. 222. 'TABLOID' BRAND MEDICINE CASE

In Cowhide. Measurements: 13\frac{3}{4} \times 8 \times 6 in. Contains eight 2 oz. stoppered, twelve 1 oz., fourteen 6 dr., sixteen 4 dr., and nine 2 dr. phials of 'Tabloid' and 'Soloid' Brand products, a B. W. & Co. All-Glass Aseptic Hypodermic Syringe, with two regular steel needles, twelve tubes of 'Tabloid' Hypodermic products, loops and drawer for instruments, etc.

## NO. 223. 'TABLOID' BRAND MEDICINE CASE

In Cowhide. Measurements: 15\(\frac{1}{4} \times 5\frac{1}{4} \times 11\(\frac{1}{4}\) in. An ideal case for the physician's carriage or motor-car. Contains eight 2 oz. stoppered, twelve 1 oz., fourteen 6 dr., sixteen 4 dr., and nine 2 dr. phials of 'Tabloid' and 'Soloid' Brand products, a B. W. & Co. All-Glass Aseptic Hypodermic Syringe, with two regular steel needles, twelve tubes of 'Tabloid' Hypodermic products, a glass-stoppered and capped ether bottle, loops for instruments, and space for bandages and dressings.

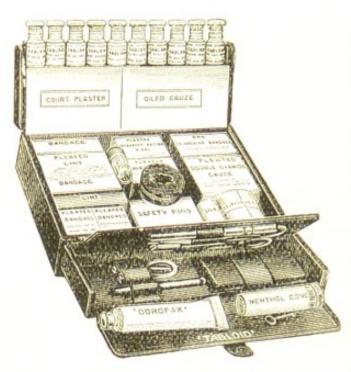
### NO. 227. 'TABLOID' BRAND MEDICINE CASE

In Cowhide or Pigskin. Measurements:  $6\frac{1}{2} \times 3\frac{3}{4} \times 3\frac{1}{4}$  in. Made of two metal cups and frames covered with leather. Arranged to contain twenty  $1\frac{1}{2}$  dr., twelve 1 dr. and fourteen  $\frac{1}{2}$  dr. tubes of 'Tabloid' and 'Soloid' Brand products. Weight, about 2 lb. 6 oz.

## No. 229. 'TABLOID' BRAND MEDICINE CASE

This case is conveniently shaped for packing in trunk, kit-bag or suit case. Its rounded corners prevent injury to adjacent articles. Measurements:  $8\frac{1}{2} \times 5\frac{1}{4} \times 3\frac{3}{4}$  in. Made of two metal cups and frames covered with Cowhide. Arranged to hold forty 4 dr. phials of 'Tabloid' and 'Soloid' Brand products. Weight, about 4 lb. 13 oz.

#### No. 230. 'TABLOID' BRAND MEDICINE CASE



No. 230. 'TABLOID' BRAND MEDICINE CASE

A Morocco leather or Cowhide case, which, when closed, measures  $8\frac{1}{4} \times 5\frac{7}{8} \times 2\frac{3}{4}$  in. Fitted with ten phials of 'Tabloid' and 'Soloid' Brand products, minor surgical instruments, and emergency dress-Conveniently ings. shaped for packing in trunk or bag. This case provides a remarkably compact and satisfactory outfit of emergency drugs, instruments and dressings, and will be found of particular utility when the practitioner is working at some distance.

## No. 231. 'TABLOID' BRAND MEDICINE CASE

(As suggested by Sir W. MOORE)



No. 231. 'TABLOID' BRAND MEDICINE CASE

In black japanned metal. Measurements: 11 × 7½ × 3½ in. Contains four ½ oz. phials, fifteen 1 oz. phials, and one 4 oz. bottle; minor surgical instruments and dressings. Complete with 'Tabloid'Brandproducts, etc., as recommended in Sir W. Moore's Manual of Family Medicine for India. Weight, about 6 lb. 14 oz.

## No. 232. 'TABLOID' BRAND MEDICINE CASE (Physician's Emergency Case)

In Cowhide. Measurements:  $8\frac{3}{4} \times 6 \times 3\frac{1}{2}$  in. The contents of this equipment are chosen with a view



No. 232. 'TABLOID' BRAND MEDICINE CASE (Physician's Emergency Case)

to emergencies which may arise in general or obstetric practice. It contains a 1 oz. bottle of 'Ernutin,' two tubes of 'Wellcome' Brand Chloroform, apparatus and materials for intravenous injection, stomach tube, 'Tabloid' Bandages and Dressings, eight

and Dressings, eight Hypo-'Vaporole' dermic products, a B. W. & Co. All-Glass Aseptic Hypodermic Syringe with two steel needles, and five tubes of 'Tabloid' Hypodermic products, in nickel-plated hypodermic case with doeskin cover, 'Borofax, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts,"
Soloid Corrosive Sublimate, medicine measure, etc. Weight about 51 lb.

NO. 233. 'TABLOID' BRAND MEDICINE CASE



No. 233. 'TABLOID' BRAND MEDICINE CASE

In Aluminised Metal. Measurements:  $7\frac{1}{2} \times 3\frac{1}{2} \times 1\frac{3}{4}$  in. Contains one  $1\frac{3}{4}$  oz. stoppered bottle, six  $\frac{1}{2}$  oz. phials, seven medium-sized tubes and five small tubes of 'Tabloid' and 'Soloid' Brand products.

NO. 250. 'TABLOID' BRAND MEDICINE CHEST

(As supplied to the late Sir H. M. STANLEY, EMIN PASHA, Military

Expeditions, Missionaries, etc.)



No. 250. 'TABLOID' BRAND MEDICINE CHEST

In japanned sheet-steel. Measurements:  $15\frac{3}{4} \times 10\frac{1}{2} \times 8\frac{1}{4}$  in. Weight, about 40 lb. Contains six 5 oz. and thirty  $3\frac{1}{2}$  oz. glass-stoppered bottles of 'Tabloid,' 'Soloid' and other fine products of B. W. & Co. in movable teak-wood tray. The lid holds supplies of 'Tabloid' Bandages and Dressings, minor surgical instruments and other accessories.

NO. 251. 'TABLOID' BRAND MEDICINE CHEST

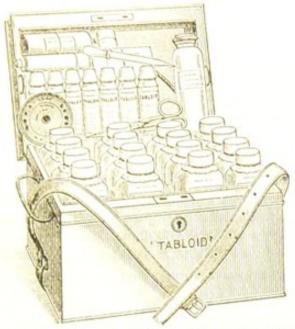
(As supplied to the Jackson-Harmsworth Polar, the National Antarctic, and other expeditions)



No. 251. 'TABLOID' BRAND MEDICINE CHEST

In Aluminium. Measurements:  $15 \times 10\frac{1}{4} \times 8\frac{1}{2}$  in. Weight, about 27 lb. Contains forty  $3\frac{1}{2}$  oz. feather-weight bottles of 'Tabloid,' 'Soloid' and other fine products of B. W. & Co. In other respects the fitting is the same as No. 250 Chest. The ideal expeditionary chest when lightness and completeness are essential.

## NO. 254. 'TABLOID' BRAND MEDICINE CHEST (The Indian)



In japanned metal.

Measurements: 9 × 6<sup>3</sup>/<sub>4</sub>
× 6<sup>1</sup>/<sub>4</sub> in. Contains sixteen 1<sup>3</sup>/<sub>4</sub> oz. glass-stoppered bottles, and seven 4 dr. phials of 'Tabloid' and 'Soloid' Brand products, instruments and tray carrying sundry dressings, etc.

Weight, about 12 lb. As carried by the late G. W. Steevens, the war correspondent.

No. 254. 'TABLOID' BRAND MEDICINE CHEST (The Indian)

### NO. 256. 'TABLOID' BRAND MEDICINE CHEST

(As supplied to the Duke of the Abruzzi's Polar Expedition)

In Aluminium. Measurements:  $10\frac{1}{4} \times 5\frac{3}{4} \times 7\frac{5}{8}$  in. Fitted with eighteen  $3\frac{1}{2}$  oz. feather-weight bottles and tubes of 'Tabloid' and 'Soloid' Brand products, and a tray containing minor dressings and sundries.

A similar chest is supplied in black japanned metal, and is known as No. 255 Chest. The contents are the same as No. 256 Chest, with the exception that the 'Tabloid' and 'Soloid' Brand products are in glass-stoppered bottles.

### NO. 258. 'TABLOID' BRAND MEDICINE CASE (The Settler's)



In black japanned metal. Measurements: 8\frac{1}{4} \times 4\frac{3}{8} \times 5\frac{3}{4}\$ in. Contains twelve 1\frac{1}{2} oz. bottles of 'Tabloid' and 'Soloid' Brand products, 'Hazeline' Cream, 'Tabloid' Bandages and Dressings, adhesive plaster and other accessories. A very compact and useful case, adapted for settlers' or planters' use, and for stations, farms or camps in outlying districts.

No. 258. 'TABLOID' BRAND MEDICINE CASE (The Settler's)

## No. 260. 'TABLOID' BRAND MEDICINE CASE (The Safari)

In black japanned metal, with canvas cover and straps. Measurements:  $9\frac{3}{4} \times 5\frac{1}{2} \times 7\frac{2}{6}$  in. A portable equipment providing in small compass a comprehensive selection of medicaments, dressings, etc. Contains twelve  $1\frac{3}{4}$  oz. and five  $\frac{1}{2}$  oz. bottles of 'Tabloid' and 'Soloid' Brand products, 'Tabloid' Bandages and Dressings, minor surgical instruments, a 2 oz. vulcanite wound syringe, a B. W. & Co. All-Metal Hypodermic Syringe, min. 20, a supply of 'Tabloid' Hypodermic products, 'Borofax' adhesive plaster, etc., etc.

#### NO. 603. 'TABLOID' BRAND MEDICINE CASE

Measurements:  $6\frac{5}{8} \times 3\frac{1}{8} \times 2$  in. Fitted with five oval bottles of 'Tabloid' Brand products: Cascara Sagrada, gr. 2; Phenacetin Compound; Potassium Chlorate and Borax; Quinine Bisulphate, gr. 2, and Soda-Mint; also one bottle of 'Soloid' Boric Acid, gr. 6 (perfumed).

In Rex Red, Royal Blue or Brewster Green Enamelled Metal, or in Aluminised Metal.

#### No. 700. 'TABLOID' BRAND EMERGENCY BELT

Measurements: 43 × 43 in., with buckles and shoulder straps, seven rainproof pouches, fitted as follows: Aluminium case of surgical instruments; aluminium case containing Hypodermic Syringe and 'Tabloid' Hypodermic products; twenty-three feather-weight tubes of 'Tabloid' and 'Soloid' Brand products; emergency dressings, etc.

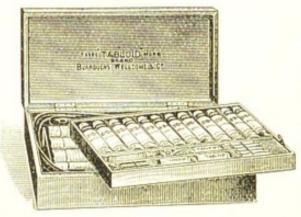
## ANTIDOTE CASE, 'TABLOID' BRAND [## B. W. & Co.]

Special Design, the property of Burroughs Wellcome & Co.

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

A compact equipment, containing apparatus and drugs ready for immediate use in the treatment of poisoning.

#### No. 300. 'TABLOID' BRAND ANTIDOTE CASE



No. 300. 'TABLOID' BRAND ANTIDOTE CASE

Measurements: 12 × 6½ × 3 in. Fitted with stomach syphontube, catheter, a B. W. & Co. Nickel - plated Hypodermic Syringe, two needles, 'Tabloid' Hypodermic products, 'Vaporole' Amyl Nitrite, toxicological chart, eighteen ½ oz. phials and three tubes of 'Tabloid' Brand antidotes, etc., etc. In Polished Mahogany.

## ANALYSIS CASES, 'SOLOID' BRAND [# B. W. & Co.]

Special Designs, the property of Burroughs Wellcome & Co.

The word 'SOLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

### NO. 500. 'SOLOID' BRAND WATER ANALYSIS CASE

This convenient hand-case supplies the apparatus, reagents, etc., necessary for examining samples of drinking-Analysis at source water at the source of supply, and for drawing up the usual reports concerning the suitability of the water for domestic purposes.

In non-warping, seasoned wood, with mahogany finish. Measurements: 121 × 101 × 41 in. Contains a nickel evaporating dish, Erlenmeyer flask, tripod, spirit-lamp, 100 c.c. and other graduated cylinders, capsules of 'Soloid' Brand Nessler's Solution, 'Soloid'

Brand products of Meta-phenylene. diamine Sulphate, Potassium Chromate, Potassium Ferrocyanide, Potassium Permanganate, Silver Nitrate, Soap, Sodium Acid Sulphate, Zinc Dust, etc.

In case of breakage, the whole or any single piece of the apparatus may be obtained separately. The supply of 'Soloid' reagents may be renewed.



No. 500. 'SOLOID' BRAND WATER ANALYSIS CASE

#### NO. 502. 'SOLOID' BRAND WATER AND SEWAGE ANALYSIS CASE

In non-warping, seasoned wood with mahogany finish. Measurements: 181 × 121 × 54 in. Contains a complete equipment specially adapted for examination of water and of sewage effluents. It is fitted with a supply of the necessary reagents and apparatus, including a special distillation outfit for the estimation of ammonia.

Full particulars of these and other examples sent on request

#### NO. 505. 'SOLOID' BRAND BACTERIOLOGICAL CASE

This case enables medical men to carry out examinations which formerly were usually submitted to laboratory workers. Owing to its small size and light weight it can readily be carried in the pocket to the patient's bedside, to obtain a blood specimen or a throat swab. Measurements:  $5 \times 3\frac{1}{4} \times 1\frac{5}{8}$  in. In nickel-plated metal easily rendered aseptic, with doeskin cover, and containing:—

Three stoppered bottles, containing:—

Methyl alcohol, dr. 1½

Absolute alcohol, dr. 1½

Distilled water, dr. 1½

Rod-stoppered bottle of Canada balsam

Graduated pipette

Cover-glass forceps

Dissecting forceps

Twelve microscopic slides

Spirit-lamp

Glass funnel

Two watch-glasses

Packet of filter papers

Metal case of needles (straight No. 9)

Supply of blood-collecting pipettes

Fifty cover-slips

Glass rod for powdering microscopic stains, etc.

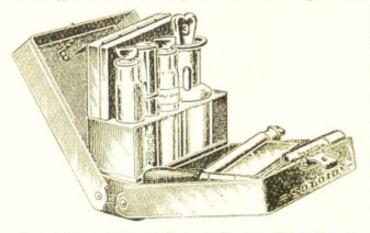
Sterile swab

One tube each of the following 'Soloid' stains:-

Eosin, Methyl Violet, Fuchsine, Romanowsky Stain, Eosin-Methylene Blue, Methylene Blue, Hæmalum, Toison Blood Fluid.

#### No. 506. 'SOLOID' BRAND BLOOD TEST CASE

Contains 'Soloid' Brand Romanowsky Microscopic Stain (Leishman's Powder), one 20 c.c. drop bottle containing distilled water, two 10 c.c.



No. 506. 'SOLOID' BRAND BLOOD TEST CASE Measurements:  $4\frac{1}{4} \times 3\frac{1}{2} \times 1\frac{1}{2}$  in.

glass-stoppered and capped phials of methyl alcohol, 1 c.c. pipette, grease crayon, hæmoglobinometer scale, absorbent papers for use with scale, glass rod, camel-hair brush, vaseline, and a vest pocket-case containing SIX microscopic slides and a Hagedorn needle in carbolised alcohol. The Hage-

dorn needle and microscopic slides are in a separate box which may, if separately required, be carried in the vest pocket. In nickel-plated metal, with doeskin cover.

#### NO. 510. 'SOLOID' BRAND URINE TEST CASE

The clinical importance of urine analysis is fully recognised. This case provides, in a most compact and convenient form, the requirements for making an examination of urine at the bedside. Owing to their purity and accuracy, the 'Soloid' Brand products contained in this case provide reliable test solutions without any weighing whatever being necessitated.

In nickel-plated metal, which is easily rendered aseptic. Measurements:  $5\frac{3}{4} \times 2\frac{3}{4} \times 1\frac{1}{4}$  in. It contains a complete set of materials for making an examination of urine, both qualitative and quantitative, for albumin, sugar, etc. The outfit includes a urinometer, Esbach's albuminimeter, a graduated measure, pipette, test-tubes and stand, test-papers, spirit-lamp, analysis charts, and a good supply of 'Soloid' reagents, including Fehling's Test, Indigo Test, Picric Acid, Potassium Ferrocyanide and Citric Acid. Each portion of the apparatus can also be obtained separately. Complete with doeskin cover.

#### TABLOID' BRAND FIRST-AID

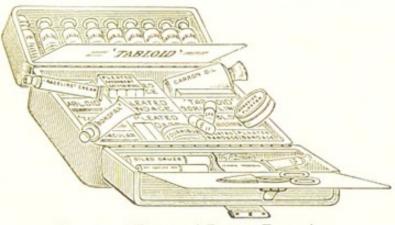
FOR AUTOMOBILISTS, AVIATORS, AERONAUTS, YACHTS-MEN, SPORTSMEN, TRAVELLERS, TOURISTS, ETC.

Special Designs, the property of Burroughs Wellcome & Co.

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co.

These equipments provide compact, complete outfits of emergency medicines, dressings and first-aid accessories. Portable and convenient, they comprise ideal outfits for motorists, cyclists, aviators, aeronauts, yachtsmen and explorers.

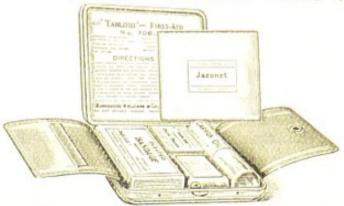
NO. 702. 'TABLOID' BRAND FIRST-AID



No. 702. 'TABLOID' BRAND FIRST-AID

In Rex Red, Royal Blue or Brewster Green Enamelled Leather. Measurements: 7½ × 5½ × 3 in. Contains eight tubes of 'Tabloid' and 'Soloid' Brand products, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' 'Hazeline' Cream, sal volatile, Carron oil (solidified), 'Tabloid' Bandages and Dressings, tourniquet, jaconet, plaster, protective skin, scissors, pins, etc., etc.

#### NO. 706. 'TABLOID' BRAND FIRST-AID



No. 706. 'TABLOID' BRAND FIRST-AID

\* 3 × 3 in. Contains
'Tabloid' Bandage,
Boric gauze, Carron
oil (solidified),
'Vaporole' Aromatic
Ammonia, for use as
"Smelling Salts," adhesive plaster, court
plaster, jaconet, pins,
a card of contents,
etc. In Aluminium.

(The Aviator's)
Measurements: 3½

As carried by M. Louis Paulhan in his aeroplane flight from London to Manchester, April 27-28, 1910.

#### No. 707. 'TABLOID' BRAND FIRST-AID



No. 707. 'TABLOID' BRAND FIRST-AID

In Rex Red, Royal Blue or Brewster Green Enamelled Metal, or in Aluminised Metal. Measurements:  $6\frac{6}{8} \times 3\frac{1}{8} \times 2$  in. Contains seven tubes of 'Tabloid' and 'Soloid' Brand products, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron oil (solidified), jaconet, castoroil, 'Tabloid' Bandages and Dressings, plaster, protective skin, scissors, pins, etc., etc.

No. 708. 'TABLOID' BRAND FIRST-AID (The Nurse's)



No. 708. 'TABLOID' BRAND FIRST-AID (The Nurse's)

In Rex Red, Royal Blue or Brewster Green Enamelled Metal, or in Aluminised Metal. Measurements:  $6\frac{5}{5} \times 3\frac{1}{5} \times 2$  in. Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron oil (solidified), jaconet, plaster, protective skin, pins, etc., and two tubes of 'Tabloid' and 'Soloid' Brand products. With webbing strap for attaching to belt or cycle.

## No. 709. 'TABLOID' BRAND FIRST-AID (The Boy Scout's)

In Rex Red or Royal Blue Enamelled Metal. Measurements:  $6\frac{5}{8} \times 3\frac{1}{8} \times 2$  in. Contains 'Tabloid' Bandages and Dressings, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' Carron oil (solidified), jaconet, plaster, protective skin, camel-hair brush and pins. With webbing strap for attaching to belt or cycle.

#### NO. 710. 'TABLOID' BRAND FIRST-AID

Measurements:  $4 \times 3\frac{1}{8} \times \frac{1}{8}$  in. Contains 'Tabloid'
Bandage, 'Tabloid'
Dressings, 'Vaporole'
Aromatic Ammonia,
for use as "Smelling
Salts," 'Borofax,'
Carron oil (solidified),
adhesive plaster, court
plaster, camel-hair brush
and pins. In Scarlet
Enamelled Metal.



No. 710. 'TABLOID' BRAND FIRST-AID

#### No. 715. 'TABLOID' BRAND FIRST-AID

In Rex Red, Royal Blue or Brewster Green Enamelled Metal, or in



No. 715. 'TABLOID' BRAND FIRST-AID

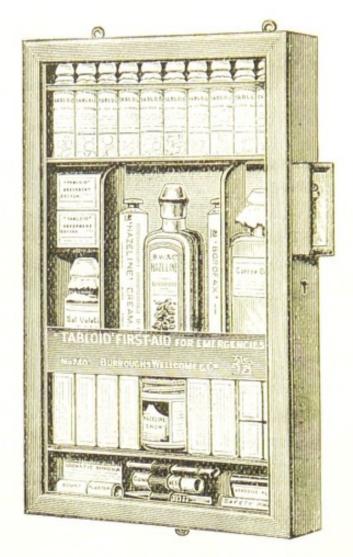
Aluminised or Black Japanned Metal.

Measurements: 75 X 41 X 2 in. Contains eight tubes of 'Tabloid' and 'Soloid' Brand products, 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," 'Borofax,' sal volatile, Carron oil (solidified), 'Tabloid' Bandages and Dressings, jaconet, plaster, protective skin, scissors, pins, etc.

### No. 730. 'TABLOID' BRAND FIRST-AID

(Wall-case for Offices, Theatres, Assembly Halls, etc.)

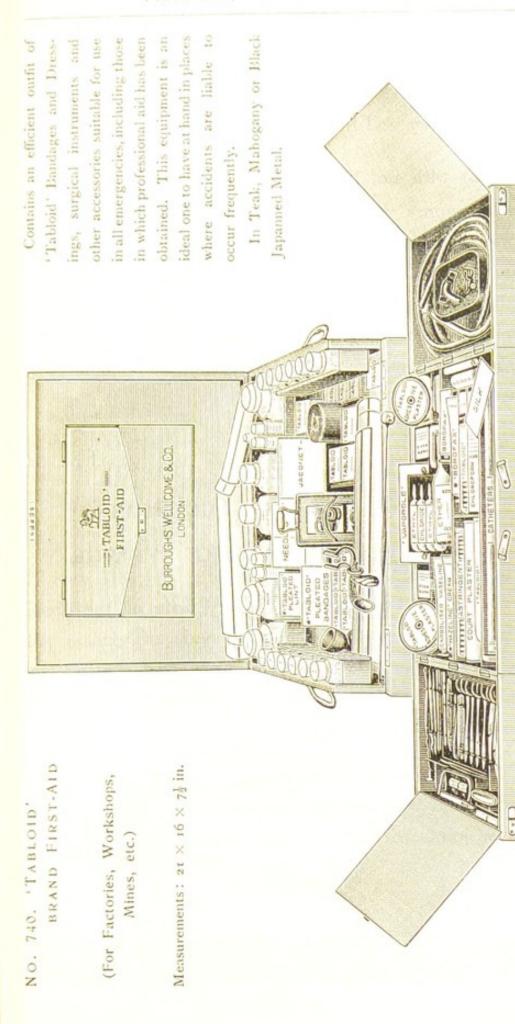
Measurements: 16\(^3\) \times 10\(^1\) \times 2\(^1\) in. Contains 'Tabloid' Bandages and Dressings, 'Borofax,' Carron oil, sal volatile, 'Hazeline,' 'Hazeline,'



No. 730. 'TABLOID' BRAND FIRST-AID

Cream, "'Hazeline' Snow," 'Vaporole' Aromatic Ammonia, for use as "Smelling Salts," adhesive plaster, court plaster, scissors, dressing forceps, camel-hair brushes, safety-pins, and ten phials of 'Tabloid' and 'Soloid' Brand products.

In Mahogany, with glass front



No. 740. 'TABLOID' BRAND FIRST-AID



## TABLOID' BRAND

## THYMUS GLAND

Used with notable success in rheumatoid arthritis. One report, concerning eighteen bed-ridden patient under treatment with this product, states that, a the end of the recorded observation, eight wer walking without crutch or stick and seven wer gradually regaining the full use of their limbs. It less severe cases similarly gratifying results wer observed.

(See page 261)

# THE B. W. & CO. ALL-GLASS ASEPTIC HYPODERMIC SYRINGE

The Syringe that injects every drop of the dose Barrel, piston and nozzle are made of glass. Al parts are accurately ground to ensure perfect fi and action. It is more easily cleaned and sterilised than any other syringe.

There are no leather, rubber or other packings to perish and contaminate the solution. There are no screw joints to wear out and become leaky.

(See page 199)



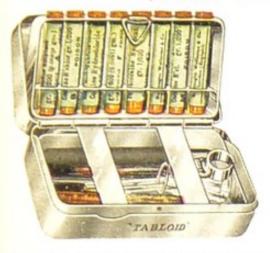
### SOME CHARACTERISTIC

## "TABLOID' AND 'SOLOID' " CASES

For Ophthalmic, Hypodermic, Dispensing, First-Aid, Bacteriological and Analytical use.

On this and the following three pages are presented facsimile reproductions in natural colours of some characteristic 'Tabloid' and 'Soloid' Equipments. Fuller particulars of these Cases will be found on the pages indicated under the illustrations,

NO. 91 ASEPTIC OPHTHALMIC 'TABLOID' BRAND POCKET-CASE (Registered)



Fitted with 'Tabloid' and 'Soloid' Ophthalmic products, Camel-Hair Brushes, Mortar and Pestle, etc.

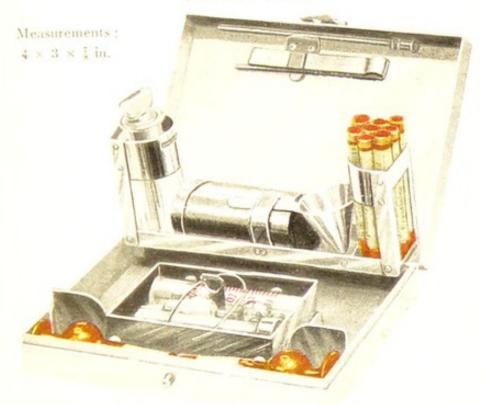
In Nickel-plated Metal, with Doeskin Cover

Measurements: 21 × 11 × 7 in.

No. 91 "Tabloid" Ophthalmic Pocket-Case

For full details, see " Modern Medical Equipments," page 163

NO. 15 ASEPTIC HYPODERMIC 'TABLOID' BRAND POCKET-CASE



No. 15 Pocket-Case (Polished Metal)

For full details, see " Modern Medical Equipments," page 161

## NO. 126 'TABLOID' BRAND MEDICINE POCKET-CASE



Also supplied in Cowhide, Morocco Leather, Pigskin, Brown or Green Seal Leather and Brown or Green Crocodile Leather

Measurements :  $5\frac{1}{2} \times 4 \times 1\frac{1}{8}$  in.

No. 126 Pocket-Case (Green Seal Leather)

For full details, see " Modern Medical Equipments," page 165

## NO. 220 'TABLOID' BRAND MEDICINE CASE (Registered)

Phials arranged in tiers to display labels. Contains a wide range of 'Tabloid' and 'Soloid' Brand Products, a B. W. & Co. Patent Nickel-plated Hypodermic Syringe, needles, and tubes of 'Tabloid' Hypodermic Products, etc., etc.



No. 220 Medicine Case (Morocco Leather)

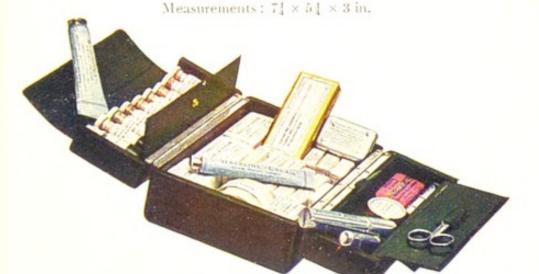
For full details, see " Modern Medical Equipments," page 169

## No. 232 'TABLOID' BRAND MEDICINE CASE (Physician's Emergency Case) (Registered)



For full details, see " Modern Medical Equipments," page 171

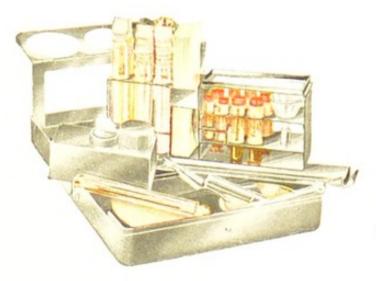
NO. 702 'TABLOID' BRAND FIRST-AID (Registered)
Also supplied in Rex Red Enamelled or Royal Blue Leather



No. 702 'Tabloid' First-Aid (Brewster Green Enamelled Leather)-Open

For full details, see "Modern Medical Equipments," page 177

## NO. 505 'SOLOID' BRAND BACTERIOLOGICAL CASE (Registered)



Complete with Doeskin Cover

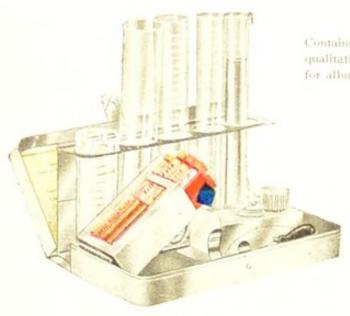
Easily rendered aseptic

 $\begin{aligned} & \text{Measurements:} \\ & 5 \times 3 \, \frac{1}{4} \times 1 \, \frac{1}{4} \, \text{in.} \end{aligned}$ 

No. 505 Case (Nickel-plated Metal)

For full details, see "Modern Medical Equipments," page 176

## NO. 510 'SOLOID' BRAND URINE TEST CASE (Registered)



Contains the means of applying qualitative and quantitative tests for albumen, sugar, etc., to urine.

Measurements:  $5\frac{5}{4} \times 2\frac{5}{4} \times 1\frac{1}{4}$  in.

Complete with Doeskin Cover

No. 510 Case (Nickel-plated Metal)

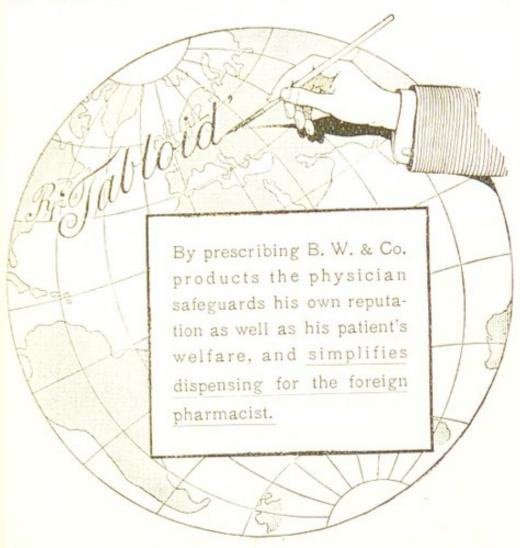
For full details, see " Modern Medical Equipments," page 177

## B.W. TCO PRODUCTS

## STANDARDISE DISPENSING

## ALL OVER THE WORLD

No matter when or where the physician's prescriptions are dispensed, the patient will receive medicaments of the same standard of activity, accuracy and dosage,



so long as the products of Burroughs Wellcome & Co. are specified.

B. W. & Co. have Offices and Warehouses in every Continent, and Depots in every civilised community. Their products are stocked by, or are within the reach of, every Pharmacist.

### DANGEROUS ABBREVIATION

The words 'Tabloid' and 'Soloid' should always be written in full to ensure the supply of genuine—B. W. & Co.—products.

When ordering a certain product an abbreviation may bring you what you do not want, and thereby cause serious disappointment.

To write any contraction of 'Tabloid' or 'Soloid,' when these brands are intended, introduces an element of doubt. Why take the risk?

Behind the brands 'Tabloid' and 'Soloid' are years of research, experience and endeavour—the whole foundation of Burroughs Wellcome & Co.'s reputation.

When 'Tabloid'— — or 'Soloid' — — is written, in whatever part of the world the prescription is dispensed, the patient will receive the same genuine products of uniform strength and unvarying activity compounded with exceptional accuracy from ingredients of the highest standard of purity.

It is best and safest, therefore, to write the word in full, thus—

Re Tabloid' - - -



'Alaxa' Aromatic Liqueur of Cascara Sagrada DOSE (Trade Mark)

An aromatic liqueur which presents the tonic, One-half laxative properties of cascara sagrada in a two teaspoonpleasant and acceptable condition.

fuls.

In bottles of 4 fluid ounces.

Alkaloids, 'Wellcome' Brand (see pages 273-290)

Ammonium Chloride Inhaler, 'Vaporole' Brand (see page 271)

Anæsthetics, Local (see 'Epicaine,' page 198; 'Tabloid' Hypodermic products, pages 201-206; 'Soloid' products, page 222; and 'Vaporole' products, pages 270-271)

Analysis Cases, 'Soloid' Brand (see pages 175-177)

Analysis Charts, packets of 25

Antidote Case, 'Tabloid' Brand (see page 174)

'Aol,' a derivative of Santalum album (see 'Tabloid' (Trade Mark) Brand products, page 232)

Arylarsonates (see 'Soamin,' pages 222 and 258)

Bacteriological Case, 'Soloid' Brand (see page 176)

## Bandages, Pleated Compressed, 'Tabloid' Brand (see pages 192, 193)

#### 'Bivo' Beef and Iron Wine

(Trade Mark)

A pure detannated wine, each fluid ounce contains the stimulating properties of fresh lean beef, with the equivalent of one grain of metallic iron. In bottles of 8 and 16 fluid ounces.

One teaspoonful for children, to one tablespoonful for adults.

## 'Borofax' BRAND BORIC ACID OINTMENT (Trade Mark)

An emollient, possessing antiseptic and sedative properties.

### 'Brockedon' Products

Burroughs Wellcome & Co. are the successors to, and sole proprietors of, the business of BROCKEDON, who, in 1842, ORIGINATED COMPRESSED MEDICINES in the shape of bi-convex discs—issued under the designation of COMPRESSED PILLS.

'Brockedon' Brand Compressed Pure Bicarbonate of Soda
,, ,, ,, ,, Potass
,, ,, ,, Chlorate ,, ,,

Chemicals, 'Wellcome' Brand (see pages 273-292)

## CHESTS AND CASES (B. W. & Co.)

A comprehensive selection of chests and cases is prepared and issued under the 'TABLOID' and 'SOLOID' Brands, fitted with medicines suited for every variety of climate, and varying in size and content, from the fully-equipped chests containing supplies sufficient for medical officers of expeditions, etc., down to the compact pocket-cases suited to the needs of the private practitioner.

Descriptions and illustrations of many of these cases will be found in the preceding section.

Chloroform, 'Wellcome' Brand (see page 277)

Compound Menthol Snuff (B. W. & Co.) (see page 209)



## " DARTRING' BRAND PRODUCTS

The 'DARTRING' Brand appears on all labels of the genuine original Lanoline preparations.

#### 'DARTRING' BRAND-

- ., 'Lanesine' (see page 208)
- ,, Lanoline (Adeps Lanæ Hydros.)
- ., ,, Anhydrous (Adeps Lanæ)

Adeps Lanæ Hydros., B.J.D.

,, Anhydros., B.J.D.

Note.—If this quality of Adeps Lanæ Hydros, or of Adeps Lanæ Anhydros, be required, the letters B. J. D. must be specified.

- ., Cold Cream
- ., Ointment Base
- ,, ,, ,, Anhydrous
- ., ., Pomade
- ,, ,, Soaps-Shaving (in sticks)
- ,, ,, ,, Ichthyol, Pine Tar, Toilet (boxes of 3 tablets)
- ", Toilet (specimen boxes)
- ", ,, (collapsible tubes)
- ,, ,, Toilet Powder (tin boxes)
- ,, ,, Veterinary

Dental Hypodermic Syringe, The B. W. & Co. (see page 200)

Dentifrice, 'Opa' Liquid (see page 210)

Diary, The 'Wellcome' Photographic Exposure Record and (see page 217)

### DRESSINGS, SURGICAL

TRADE 'TABLOID' BRAND

Pleated Compressed Dressings were originated and introduced by Burroughs Wellcome & Co.

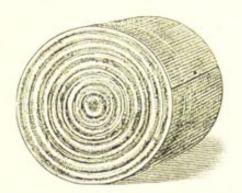
The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. To ensure the supply of pure and reliable preparations, this brand should always be specified when ordering.

The introduction of 'Tabloid' Pleated Compressed Bandages and Dressings marks an important advance in the preparation of surgical accessories. These Important advance bandages and dressings are made of materials of the finest quality, and are subjected to great pressure under

### Dressings, Surgical, 'Tabloid' Brand-continued

which each assumes a rectangular shape. After compression, each is automatically wrapped in an effective protective covering.

The superiority of 'Tabloid' Dressings over the ordinary variety is very marked, not only in convenience and compactness, but also in quality of materials. Notwithstanding the great saving in space effected by means of compression, 'Tabloid' Dressings are yet as easily unfolded as those in ordinary use. Other advantages are their freedom from contamination, and extreme compactness which enables them easily to be carried in the hand-bag, saddle- or cycle-case.





Graphic representation of the relative bulk of an ordinary bandage  $2\frac{1}{2}$  in.  $\times$  6 yds., and a 'Tabloid' bandage of the same length and width

The above illustration, representing an ordinary and a pleated bandage, graphically demonstrates the striking difference in their relative size, and renders apparent the consequent economy in space effected by the use of 'Tabloid' Pleated Compressed Bandages and Dressings, while their flattened sides enable them, even bulk for bulk, to be packed still more closely and compactly than the old-fashioned rounded roller-bandage in common use.

'Tabloid' Surgical Dressings are also issued sterilised in special impervious coverings. By means of these sterilised pleated bandages and dressings the latest requirements of modern surgical practice are adequately and conveniently provided for. They are remarkable for their exceptional evenness of medication.

The following are issued in packages as follow:-

### Absorbent Cotton between Gauze, Pleated Compressed, 'Tabloid' Brand—

In 2 ounce packets



#### Dressings, Surgical, 'Tabloid' Brand-continued

## Adjustable Head Dressing, Compressed, 'Tabloid'

'Tabloid' Adjustable Head Dressing (originated and introduced by B. W. & Co.), is an ingenious device, which makes the troublesome roller-bandage a thing of the past, for use in head injuries. It consists essentially of a cap-like arrangement, split on one side, with the lower edge prolonged into a bandage which fixes the cap. It fits any head; can be applied in a few seconds; does not slip; and it adds to the patient's comfort and appearance. For emergency, field or first-aid work, its superiority is overwhelming.

### Bandages, Pleated Compressed, 'Tabloid' Brand-

```
Open Wove, I in. \times 6 yds.

,, ,, 2\frac{1}{2} in. \times 6 yds.

Flannel, 2\frac{1}{2} in. \times 5 yds.
```

Triangular (Pictorial), packets of 2 bandages

## Carbolised Tow, Pleated Compressed, 'Tabloid'

In 2 ounce packets

### Cotton, Pleated Compressed, 'Tabloid' Brand-

Absorbent, dounce, in packets of 4 (not supplied sterilised)

,, I and 2 ounce packets

Boric, I and 2 ,, ,,
Double Cyanide, 3°/o, I and 2 ,, ,,
Iodoform, I and 2 ,, ,,

Gauzes, 'Tabloid' Brand-

Absorbent, in packets of 3 yds. (compressed)
Bismuth, in cartons of 6, ½ in. × 1 yd., sterilised only

```
,, ,, ,, I in. × t yd. ,,
,, ,, ,, 2 in. × t yd. ,,
,, ,, ,, 3 in. × t yd. ,,
```

, in packets of 1 in. × 6 yds. (compressed)

,, ,, 2 in. × 6 yds. ,, ,, ,, 3 in. × 6 yds. ,, ,, , , 1 in. × 12 yds. ,, ,, , , , 2 in. × 12 yds. ,, ,, , , , , 3 in. × 12 yds. ,,

,, ,, 36 in. × 3 yds. ,,

,, ,, 36 in. × 3 yds., sterilised

### Dressings, Surgical, 'Tabloid' Brand-continued

## Gauzes, 'Tabloid' Brand-continued

Boric, in packets of 3 yds. (compressed)

Double Cyanide, 3% ,, ,, 3 yds. ,,

Iodoform, ,, ,, 1 yd. ,,

,, ,, 3 yds. ,,

Sal Alembroth, 1% ,, ,, 3 yds. ,,

### Lint, Pleated Compressed, 'Tabloid' Brand-

Plain, I and 2 ounce packets
Boric, I and 2 ,, ,,
Carbolised, I ,, ,,

## Ear Drums, Artificial (Dr. Ward Cousins' Design)-

For use in cases of deafness caused by collapse or perforation of the tympanic membrane. Supplied in four sizes. A combined probe and forceps for insertion or extraction of the drum is also supplied.

## Effervescent Medicinal Substances, 'Tabloid' Brand—

In the preparation of 'Tabloid' Effervescent products, only ingredients of exceptional purity are employed, and special methods are adopted to retain their effervescent properties. On account of their relatively small surface the 'Tabloid' products are much less liable to deterioration than the ordinary granular preparations. Mixed with water they promptly render draughts of a refreshingly effervescent nature and accurate posology. (See 'Tabloid' Brand Effervescent Products, page 241)

### TRADE 'ELIXOID' BRAND PRODUCTS

The word 'ELIXOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

'ELIXOID' Brand Products are elegant and acceptable fluid preparations of important medicaments to which agreeable flavours have been imparted without in any degree diminishing their physiological activity.

#### 'ELIXOID' BRAND-

,, Ammonium Valerianate, in bottles of 8 fluid ounces.

Each fluid drachm contains Ammonium Valerianate, gr. 2.



## 'Elixoid' Brand Products-continued

- 'ELIXOID' BRAND-
- "Formates Compound, in bottles of 4 fluid ounces.

  Each fluid ounce contains Calcium Formate, gr. 12;

  Sodium Formate, gr. 6; Magnesium Formate, gr. 6.
- "Glycerophosphates, in bottles of 4 fluid ounces.

  Each fluid ounce contains Calcium Glycerophosphate,
  gr. 4; Sodium Glycerophosphate, gr. 2; Potassium
  Glycerophosphate, gr. 2; and Magnesium Glycerophosphate, gr. 1.
- " Mucin, in bottles of 4 fluid ounces.

  Each fluid drachm contains, in suspension, Mucin, gr. 2½.
- "Pine Tar Compound, in bottles of 4 fluid ounces.

  A pleasantly-flavoured preparation containing Tar, 'Pinol,'
  Terpin Hydrate, Wild Black Cherry, Tolu and Ipecacuanha in a convenient and acceptable form.

Also various other products issued under the 'Elixoid' Brand

## Emetine Hydrobromide, 'Wellcome' Brand

A stable salt of Emetine for therapeutic use (see page 278)

## Emetine Hydrochloride, 'Wellcome' Brand

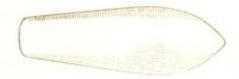
A soluble salt of Emetine (see page 279)

## SUPPOSITORIES

The word 'ENULE' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

The 'ENULE' Rectal Suppository possesses conspicuous advantages over those of the ordinary conical shape, which are difficult to introduce, and may even be expelled. 'Enule' suppositories are encased in sheaths of pure tinfoil, easily stripped off at the moment of using. They contain accurate doses of pure drugs, the active principles of which are evenly diffused throughout the mass, and they retain the full activity of the medicament for long periods of time.

## 'Enule' Brand Rectal Suppositories-continued





'Enule' Brand Rectal Suppository after removal of sheath.

'Enule' Brand Rectal Suppository showing sheath of pure tinfoil This shape originated by Burroughs Wellcome & Co.

PROF. CASPARI, in his Treatise on Pharmacy, says :-

"The usual shape of rectal suppositories is that of a cone with a rounded apex, but the difficulty of readily introducing them into the rectum has led to the designing of a new shape by H. S. Wellcome, of London, the great advantages of which become apparent when it is Expert opinion remembered that the bulbous end is inserted into the rectum, and, that as soon as the greatest diameter has been passed, expulsion of the suppository is impossible, by reason of the very contractile force of the sphincter muscle, which renders retention of the ordinary conical shape often so difficult."

Each kind is packed in containers of one dozen (of one strength).

E	NU	LE' BRAND-				DIRECTION
	No.					
,,	10.	Belladonna Extract	gr.	1/4		As required
,,	II.	,, ,,	gr.	1/2		As required
,,	12.	"	gr.	I		As required
,,	9.	Bismuth Subgallate	gr.	10		As required
,,	14.	Cocaine Hydrochloride				
,,	30.	'Epinine' 0.01 gm. (Trade Mark)	[gr.	1/6]		As required
,,	25.	Gall and Opium				As required
		Containing Extract of Opi Tannic Acid, gr. 3, equiv Galls.	um, g valent	to gr.	and 5 of	
,,	Ι.	Glycerin (Anhydrous), 95%	Child	ren's s	ize	As required
,,	2.	Glycerin (Anhydrous), 95%	Adult	s' size		As required
,,	5.	'Hazeline' Compound				As required
		Containing 'Hazeline,' Exmelis and Zinc Oxide (see Suppositories)	e also	of H 'Haze	ama- line '	
,,	19.	Lead and Opium				As required
		R Plumbi Acetatis Pulv. Opii		gr. 3 gr. 1		



#### 'Enule' Brand Rectal Suppositories-continued

E		LE' BRAND-			DIRECTION
,,	No. 3. 4.	Meat, Predigested ,, ,, Containing gr. 84 and gr. concentrated peptone fro	Children's Adults' siz 15, respective om choice fres	size e ely, o	As required of
,,	6. 7.	Milk, Predigested ,,, Containing gr. 10 and gr. concentrated peptone fr	Children's Adults' size	size)	As required
,,	17. 18.	Morphine Hydrochloride ,,,,,,,, Morphine and Belladonna	gr. I/4 gr. I/2 gr. I		As required As required
,,	20.	R Morphinæ Hydrochlorid Ext. Belladonnæ Opium Extract	gr. 1/2		As required
,,	13.	Quassin, Amorphous  The bitter principle of used in treatment for especially in children.	quassia wo threadwor	od, ms,	of at least
,,	8.	Quinine Bisulphate	gr. 5		As required
٠,	21.	Santonin	gr. 3		As required
,,	23.	Soap Compound			As required

R Saponis Animalis ... gr. 7 Sodii Sulphatis Exsiccati ... gr. 7 Also other preparations issued under the 'Enule' Brand

'Enule' Brand Rectal Suppositories must be stored in a cool and dry place.

#### TRADE 'EPININE' PRODUCTS

'Epinine' (3:4-dihydroxyphenylethylmethylamine), is a synthetic hæmostatic, discovered by investigations in the laboratories of the 'Wellcome' Chemical Works, London (Eng.). It possesses the characteristic sympatho-mimetic actions of supra-renal extract. Compared with adrenine, its pressor activity in the cat was found to be as 1:10, while the rise of blood-pressure produced by 'Epinine' persists longer than that produced by a dose of adrenine which raises the pressure to an equal maximum. In all other respects, the action of 'Epinine' is similar to that of the natural supra-renal active principle.

#### 'Epinine' Products-continued

The uses of 'Epinine' correspond in every respect with those of the natural extract—principally hæmostatic and styptic.

Being a synthetic preparation, forming crystalline salts, the chemical purity of 'Epinine' can be guaranteed, and its solutions may be sterilised in a hard glass or suitable metal vessel without undergoing decomposition.

'Epinine,' 1 in 100, in amber-coloured stoppered bottles containing 10 c.c. and 25 c.c.

A supply of 'Soloid' Sodium Chloride, 0.23 gm., for preparing normal saline solution, is included with each bottle.

'Epicaine' (Trade Mark) ('Epinine' and Cocaine Hydrochloride), presents special advantages as a styptic local anæsthetic.

In amber-coloured stoppered bottles containing 10 c.c.

Each c.c. contains 'Epinine,' 0.0003 gm. (gr. 1/216), and Cocaine Hydrochloride, 0.02 gm. (gr. 1/3); each min. 10 contains 'Epinine,' gr. 1/365, and Cocaine Hydrochloride, gr. 2/11.

(See also 'Enule' 'Epinine,' page 196; 'Tabloid' Ophthalmic 'Epinine,' page 211; 'Tabloid' 'Epinine' Compound, page 242; 'Vaporole' 'Epicaine' and 'Vaporole' 'Epinine,' page 271)

Ergotinine, 'Wellcome' Brand (see page 279)

Ergotoxine Phosphate, 'Wellcome' Brand (see

#### TRADE 'ERNUTIN' BRAND PRODUCTS

The word 'ERNUTIN' is a brand which designates fine products issued by Burroughs Wellcome & Co.

The characteristic effects of ergot on the uterus and bloodpressure are due to certain active principles, which have been isolated at the Wellcome Physiological Research Laboratories. Many ergot preparations contain little or none of these principles, and give negative or even harmful results.

'ERNUTIN' products present the active therapeutic principles of ergot—Ergotoxine, 'Tyramine' and 'Ergamine'—in stable solution and in a state of purity. Being prepared from active

required



#### 'Ernutin' Brand Products-continued

principles, the purity of which can be determined by chemical means, the necessity for physiological standardisation is removed.

- 'Ernutin' (Oral). In 1, 4 and 16 fl. oz. 30 to 60 minims amber-coloured bottles.
- 'Ernutin' (for Hypodermic use) (see 'Vaporole' 'Ernutin,' page 271)

For full particulars of the pharmacology and therapeutics of 'Ernutin' products, see special booklet.

Ether, in hermetically-sealed glass capsules, each containing min. 60.

'Eucalyptia,' pure oil of Eucalyptus globulus— (Trade Mark) Respiratory disinfectant and deodorant. Bottles of 2 fl. oz.

First=Aid, 'Tabloid' Brand (see pages 177-181)

Gauzes, 'Tabloid' Brand (see pages 193-194)

Gonococcus Vaccine, 'Wellcome' Brand (see page

Glycerin 'Enule' Suppositories (see page 196)

#### TRADE 'HAZELINE' PRODUCTS

PREPARATION DOSE 'Hazeline' Brand An anodyne and styptic dr. I to Hamamelis virginifluid obtained by disdr. 3 ana, in 4 and 16 tillation from the fresh fl. oz. bottles. young twigs. ' Hazeline ' Cream, in Combines anodyne, collapsible tubes and astringent and emolglass pots. lient properties. "' Hazeline' Snow," A non-greasy preparation, (Trade Mark) owing its astringent, soothing and healing in glass pots. properties to the presence of a high percentage of 'Hazeline.' Contain pure 'Hazeline' 'Hazeline' Supposi-One as

(See also 'Enule' 'Hazeline' Compound, page 196)

tories, in boxes of 12

Also other preparations issued under the 'Hazeline' Brand

### HYPODERMIC APPARATUS

SYRINGES

### All-Glass Aseptic Hypodermic Syringe,

The B. W. & Co.

Barrel, piston and nozzle consist entirely of glass. The solid piston obviates any necessity for packing. May be instantly taken apart and sterilised. In five sizes—min. 15, min. 20, or 1 c.c., with two regular steel needles, or min. 40 or min. 60, with two intramuscular steel needles. A Detachable Finger-Grip (nickel-plated), entirely distinct from the working parts of the syringe, can be supplied. A 'Tabloid' Brand Detachable Sheath-Grip is also issued for use with this syringe.

(If desired, platino-iridium needles can be fitted)

Nickel-plated Metal Cases, with removable rack, for the B. W. & Co. All-Glass Aseptic Hypodermic Syringes.

#### Patent Hypodermic Syringe, The B. W. & Co.

Nickel-plated. With two regular steel needles and fingergrip. Capacity, min. 15 or min. 20.

(If desired, platino-iridium needles can be fitted)

#### Patent Hypodermic Syringe, The B. W. & Co.

Solid Silver. Nozzle detachable, so that the solution of a 'Tabloid' Hypodermic product may be effected in the barrel. With two platino-iridium needles, in case. Capacity, min. 20.

#### Dental Hypodermic Syringe, The B. W. & Co.

Made of solid metal throughout; therefore durable, able to withstand severe strain, and easily rendered aseptic. Min. 30, with adjustable finger-grip, three needle-attachments and three steel mountless needles; complete in nickel-plated metal case with doeskin cover.

#### Serum Syringe, The B. W. & Co. All-Glass Aseptic

The working parts are composed entirely of glass, the needle being attached to the nozzle by a flexible rubber joint which guards against fracture. In five sizes, 2 c.c., 3 c.c., 5 c.c., 10 c.c. or 25 c.c., with two steel needles, in metal case.

(If desired, platino-iridium needles can be fitted)

#### Hypodermic Apparatus-continued

SYRINGES-continued

#### Serum Syringe, The B. W. & Co. Nickel-plated

In nickel-plated metal case, complete, with two special platino-iridium needles, capacity 5 c.c. or 10 c.c.

#### Tuberculin Syringe, The B. W. & Co. All-Glass Aseptic

I c.c., complete, with two regular steel needles.

#### Needles for B. W. & Co. Syringes

(Full list, etc., sent on request)

#### HYPODERMIC PRODUCTS

#### TABLOID' BRAND

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

"They are quite free from objectionable and irritative salts."

—British Medical Journal.

"They are very soluble and not at all irritating."-Lancet.

'Tabloid' Hypodermic products accurately contain the stated weight of pure medicament. They are rapidly soluble, of uniform activity, and they keep perfectly.

PREPARATION

STRENGTH

DOSE

#### 'TABLOID' BRAND

#### (Hypodermic)-

ne
s required
s required
s required
r. I/20 to
gr. 1/10

<sup>\*</sup> In tubes of 12. Others contain 20

#### Hypodermic Products, 'Tabloid' Brand-continued PREPARATION STRENGTH DOSE 'TABLOID' BRAND (Hypodermic)— No. Apomorphine Hydrochloride Strychnine Hydrochloride gr. 1/60 Atropine Sulphate ... gr. 1/150 gr. 1/200 to 14. ... gr. 1/100 gr. 1/100 (in-13. ... gr. 1/60 | creased) Atropine and Morphine (see Morphine, page 204) Atropine Sulphate ... gr. 1/200 121. Strychnine Sulphate ... gr. 1/100 J (Atropine Sulphate ... gr. 1/150) 122. Strychnine Sulphate ... gr. 1/80 J \*Caffeine Sodio-salicylate gr. 1/2 gr. 1/2 to gr. 4 Cocaine Hydrochloride ... gr. 1/10 23. 22. ... gr. 1/6 gr. 1/10 to 54. ... gr. 1/4 gr. 1/2 40. ... gr. I/2 Cocaine Compounds (see Anæsthetic Compounds A and B, page 201) Codeine Phosphate 44. ... gr. 1/4 gr. 1/4 to gr. 2 \*Cotarnine Hydrochloride gr. 1/4 gr. 1/4 gr. 1/2 46. Curara ... ... gr. I/12 gr. 1/12 to gr. 1/2 Digitalin (Amorphous) ... gr. 1/100 30. gr. 1/100 to gr. 1/30 306. Digitalin (Crystalline), 0.0005 gm. [gr. 1/130] One (Digitalin (Amorphous) 86. Strychnine Sulphate āā gr. 1/100 Digitalin (Amorphous) Strychnine Sulphate One 125. Trinitrin (Nitroglycerin) āā gr. 1/100) 130. \*Emetine Hydrochloride gr. 1/3 One \* 'Ergamine' (Trade Mark), 362. (\(\beta\)-iminazolylethylamine)

0.001 gm. [gr. 1/65]

One

<sup>\*</sup> In tubes of 12. Others contain 20



#### Hypodermic Products. 'Tabloid' Brand-continued

DOSE STRENGTH PREPARATION 'TABLOID' BRAND (Hypodermic)— ... gr. 1/200 \ gr. 1/200 to Ergotinine Citrate 38. ... gr. 1/100 J gr. 1/50 37. \* | Ergotinine Citrate ... gr. 1/100 ( Morphine Sulphate ... gr. 1/6 \* | Ergotinine Citrate ... gr. 1/100) One Strychnine Sulphate ... gr. 1/20 ... gr. 1/100 One to two 116. \*Ergotoxine 119. \*{ Ergotoxine ... ... gr. 1/100) ... gr. 1/6 Morphine Sulphate ... gr. 1/100 One \* SErgotoxine ... Strychnine Sulphate ... gr. 1/20 J Eserine (see Physostigmine) \*Eucaine Hydrochloride gr. 1/3 gr. I/10 79. gr. I gr. I/2 78. \*Eucaine Lactate... ... gr. 1/3 gr. I/IO 112. ... gr. I gr. 1/2 Heroin Hydrochloride ... gr. 1/25 102. gr. 1/25 to ... gr. I/I2 IOI. gr. 1/6 ... gr. 1/6 127. Homatropine Hydrochlor. gr. 1/250 gr. 1/250 to 47. gr. I/20 Hyoscine Hydrobromide gr. 1/200 gr. 1/200 to 49. gr. 1/100 | gr. 1/100 (in-100. gr. 1/75 | creased) 48. 95. \*Hyoscine Compound, A One Hyoscinæ Hydrobromidi ... gr. 1/100 Morphinæ Sulphatis ... ... gr. 1/6 ... gr. 1/180 Atropinæ Sulphatis ... 96. \*Hyoscine Compound, B One R Hyoscinæ Hydrobromidi ... gr. 1/100 Morphinæ Sulphatis ... Atropinæ Sulphatis ... ... gr. 1/150 gr. 1/200 to 31. "Hyoscyamine Sulphate gr. 1/80 gr. I/100 (ingr. 1/20 41. 22 creased) Mercuric Chloride 1/60 ... gr. I/60 gr. 29. ... gr. 1/30 gr. 1/30 Mercuric Succinimide ... gr. 1/10 gr. I/10 to 124. gr. 1/5 ... gr. 1/5 98.

<sup>\*</sup> In tubes of 12. Others contain 20

#### Hypodermic Products, 'Tabloid' Brand-continued

PREPARATION STRENGTH 'TABLOID' BRAND (Hypodermic)— Morphine Hydrochloride gr. 1/6 66. 1/8 gr. 55. gr. 1/4 gr. 1/4 (in-90. gr. 1/3 creased) 91. gr. 1/2 23.3 33 Morphine Hypophosphite, gr. 1/4 132. 133. gr. 1/3 One 134. gr. 1/2 135. gr. I 2.5 Morphine Meconate 27. ... gr. 1/8 gr. 1/8 26. ... gr. 1/6 gr. 1/4 (in-25. ... gr. 1/4 creased) 24. ... gr. 1/3 2.2 1.5 3.3 6. Morphine Sulphate ... gr. 1/12 5. ... gr. 1/8 ... gr. I/6 gr. 1/8 4. to gr. 1/4 (in-3. ... gr. 1/4 ... gr. 1/3 creased) I. ... gr. I/2 22 76. ... gr. I 2.2 88. Morphine Tartrate ... gr. 1/4 One Morphine Hydrochloride gr. 1/6 One Atropine Sulphate ... gr. 1/70 (Morphine Sulphate ... gr. I/I2 12. Atropine Sulphate ... gr. 1/250 Morphine Sulphate ... gr. 1/8 II. Atropine Sulphate ... gr. 1/200 Morphine Sulphate ... gr. 1/6 IO. Atropine Sulphate ... gr. 1/180 One of Morphine Sulphate ... gr. 1/4 requisite 9. Atropine Sulphate ... gr. I/150 composition Morphine Sulphate ... gr. 1/3 S. Atropine Sulphate ... gr. I/120 Morphine Sulphate ... gr. 1/3 85. (Atropine Sulphate ... gr. I/60 Morphine Sulphate ... gr. I/2 Atropine Sulphate ... gr. I/100 (Morphine Sulphate ... gr. 1/4 89. One Strychnine Sulphate ... gr. 1/60

<sup>\*</sup> In tubes of 12. Others in tubes of 20



#### Hypodermic Products, 'Tabloid' Brand-continued

PREPARATION

STRENGTH

DOSE

#### 'TABLOID' BRAND

#### (Hypodermic)-

,, 355. †New Tuberculin (W), Human, containing tubercle bacillary substance ... Occool mgm. One

,, 356. †New Tuberculin (W), Human, containing tubercle bacillary substance ... One

,, 357. †New Tuberculin (W),
Human, containing
tubercle bacillary substance ... One

,, 358. †New Tuberculin (W),
Bovine, containing
tubercle bacillary substance ... ... o-00001 mgm. One

,, 359. †New Tuberculin (W),
Bovine, containing
tubercle bacillary substance ... One

,, 360. †New Tuberculin (W),
Bovine, containing
tubercle bacillary substance ... ... One
Nitroglycerin (see Trinitrin)

,, 39. Physostigmine Salicylate gr. 1/100 One to four ,, 84. Picrotoxin ... gr. 1/60 One to two

,, 338. Pilocarpine Hydrochlor. 0.001 gm. One or more

,, 34. Pilocarpine Nitrate ... gr. 1/10 ,, 64. ,, ,, ... gr. 1/6 ,, 33. \* ,, ,, ... gr. 1/3 ,, 32. \* ,, ,, ... gr. 1/2 gr. 1/20 to gr. 1/2

,, 82. \*Potassium Permanganate gr. 2 gr. 1 to gr. 5

,, 83. \*Quinine Bihydrochloride gr. 1 ,, 73. \* ,, ... gr. 3 gr. 1 to gr. 5

,, 97. \*, ,, ... gr. 5 ,, 103. \*Quinine Bisulphate ... gr. 5 gr. 1 to gr. 5

,, 42. \*Quinine Hydrobromide... gr. 1/2 gr. 1/2 to gr. 2

, 56. \*Sparteine Sulphate ... gr. 1/2 gr. 1/2 to gr. 1

" 52. Strophanthin ... gr. 1/500 One to five

<sup>\*</sup> In tubes of 12; † in tubes of 6. Others in tubes of 20

### Hypodermic Products, 'Tabloid' Brand-continued PREPARATION STRENGTH 'TABLOID' BRAND (Hypodermic)—

Strychnine Hydrochloride gr. 1/200 ,, 109. gr. 1/150 to ,, 110. ,, ... gr. 1/100 / 2.2 gr. 1/10 III. ... gr. 1/30 22 62. Strychnine Nitrate ... gr. 1/15 \ gr. 1/150 to 61. ... gr. 1/10 / gr. 1/10 18. Strychnine Sulphate ... gr. 1/150) 17. ... gr. 1/100 16. ... gr. 1/60 gr. 1/150 to ,, 104. ... gr. 1/50 gr. 1/10 99. ... gr. 1/40 75-... gr. 1/30 2.2 ,, 123. ... gr. 1/20 · (Strychnine Sulphate ... gr. 1/50 ,, 126. One to two Trinitrin (Nitroglycerin) gr. 1/100 Trinitrin (Nitroglycerin) gr. 1/250 gr. 1/250 to 65. ,, 115. ( ,, ) gr. 1/100 f gr. 1/50 Tuberculin, New (W) (see New Tuberculin) ,, 361. "'Tyramine' (Trade Mark)

(Para-hydroxyphenylethylamine) ... 0.02 gm. [gr. 1/3] One

Also various other Hypodermic products issued under the 'Tabloid' Brand.

\*In tubes of 12. Others in tubes of 20

Hypodermic Solutions (see 'Vaporole' Brand Products, pages 270-271)

Hypodermic Veterinary Products, 'Tabloid' Brand (Full particulars sent on request)

Indicators for Volumetric Analysis (see page 229) Inhaler

Ammonium Chloride Inhaler, 'Vaporole' Brand

A remarkably compact apparatus which will deliver perfectly neutral vapour of pure Ammonium Chloride.

- 'Vaporole' Acid ) For use in above Inhaler.
- 'Vaporole' Alkali J In boxes of 12.

A Nasal Attachment is also supplied for use with above Inhaler.

Iodic = Hydrarg. (see Mercuric Potassium Iodide, 'Soloid' products, page 225, and 'Tabloid' products, page 251)



## \*KEPLER' MALT EXTRACT AND COMBINATIONS

SPECIAL CAUTION.—Many attempts are made to imitate 'Kepler' Malt Products, hence, as malt preparations vary greatly in dietetic value, it is necessary to take precautions against substitution. Verbal instructions are not safe. To prevent fraud it is best to write prescriptions for original bottles.

Dose—Of all 'Kepler' preparations, one teaspoonful to two dessertspoonfuls.

#### PREPARATION AND STRENGTH

#### 'KEPLER' MALT EXTRACT-

A most reliable and highly-concentrated extract, prepared from the finest winter-malted barley. Its dietetic value depends not only on its high diastatic powers, but also on the albuminoids, phosphates, etc., which it contains.

Ditto with BEEF AND IRON

Each fluid drachm contains: Extract of Beef, gr. 1; and Iron and Ammonium Citrate, gr. 1/8

Ditto with CASCARA SAGRADA

Each fluid ounce contains Extract of Cascara Sagrada, gr. 6

Ditto with CHEMICAL FOOD (Phosphates Compound)

Each fluid ounce contains: Iron Phosphate, gr. 2; Calcium Phosphate, gr. 3; Sodium Phosphate, gr. 1/4; Potassium Phosphate, gr. 1/4

Ditto with HÆMOGLOBIN

Each fluid ounce contains Hæmoglobin, gr. 8-3/4

Ditto with HYPOPHOSPHITES

Each fluid ounce contains: Calcium Hypophosphite, gr. 8; Potassium Hypophosphite, gr. 4; Sodium Hypophosphite, gr. 4

Ditto with Iron

Each fluid ounce contains Soluble Iron Pyrophosphate, gr. 4

Ditto with IRON AND QUININE CITRATE

Each fluid ounce contains Iron and Quinine Citrate, gr. 7-1/2

Ditto with IRON IODIDE

Each fluid ounce contains Iron Iodide, gr. 2

Ditto with IRON, QUININE AND STRYCHNINE

Each fluid ounce contains: Iron Phosphate, gr. 1/2; Quinine Phosphate, gr. 3/8; and Strychnine Phosphate, gr. 1/64

Ditto with PEPSIN

Each fluid ounce contains pure Pepsin, gr. 4

Ditto with Pepsin and Pancreatin

Each fluid ounce contains pure Pepsin and pure Pancreatin, of each gr. 4

Ditto with PHOSPHORUS

Each fluid ounce contains pure Phosphorus, gr. 1/64

#### 'Kepler' Malt Extract and Combinations-continued

#### PREPARATION AND STRENGTH

#### 'KEPLER' COD LIVER OIL WITH MALT EXTRACT-

Among known fatty food-stuffs in nature the highest in nutritive value is also the most readily assimilated, and that most easily utilised by the tissues. It is, moreover, a tissue-builder; and it repairs waste, and fortifies resistance against disease.

The drawbacks of cod liver oil in a natural state have always been the nausea, unpleasant eructations and alimentary disturbances it produces even when given in the purest form. 'Kepler' Cod Liver Oil with Malt Extract is especially designed to overcome these difficulties in administration. In this form it presents the purest Cod Liver Oil intimately incorporated in a state of minute molecular subdivision with the finest extract of winter-malted barley.

Thoroughly diffused in 'Kepler' Malt Extract, its digestion is easy and assimilation certain, while its unique palatability makes it readily acceptable to the most delicate children and fastidious patients, and even in the most debilitated of subjects its administration is followed by a rapid increase in weight and strength.

Initial doses should be small and only gradually increased.

#### Ditto and CHEMICAL FOOD (Phosphates Compound)

Each fluid ounce contains: Iron Phosphate, gr. 2: Calcium Phosphate, gr. 3; Sodium Phosphate, gr. 1/4; Potassium Phosphate, gr. 1/4

#### Ditto and Hypophosphites

Each fluid ounce contains: Calcium Hypophosphite, gr. 4; Potassium Hypophosphite, gr. 2; Sodium Hypophosphite, gr. 2

#### Ditto and IRON IODIDE

Each fluid ounce contains Iron Iodide, gr. 2

#### Ditto and PHOSPHORUS

Each fluid ounce contains pure Phosphorus, gr. 1/64

Also various other products issued under the 'Kepler' Brand

#### 'Lanesine,' 'Dartring' Brand

In collapsible tubes.

Lanoline (see 'Dartring' Products, page 191)



- Lint, Pleated Compressed, 'Tabloid' Brand (see page 194)
- Mallein, 'Wellcome' Brand, for diagnosis of Glanders In hermetically-sealed phials containing 1 c.c. (sufficient for one injection).
- Mait Extract (see 'KEPLER,' pages 207-208)
- Medicine Chests and Cases, 'Tabloid' Brand (see pages 159-181)
- Menthol Snuff, Compound (B. W. & Co.)
  - An extremely effective and convenient combination of menthol, ammonium chloride, camphor, 'Epinine,' bismuth oxychloride, lycopodium, etc., issued in enamelled tins, after the manner of old-fashioned black-and-gold snuffboxes.
- Methyl Alcohol (Pure)
  - For use in microscopic staining. In hermetically-sealed glass phials, each containing 15 c.c. (approx. ½ fl. oz.)
- Microscopic Stains, 'Soloid' Brand (see pages 229-230)
- Mineral Waters (see 'Tabloid' Brand Mineral Water Salts,
- Morphine Salts (Acetate, Hydrochloride, Sulphate and Tartrate, see 'Wellcome' Brand, page 285)
- Mucin (in scales)-
  - A compound substance consisting of protein and a carbohydrate, given internally in those conditions in which bismuth is usually prescribed. Bottles containing I oz.
  - (See also 'Elixoid' Mucin, page 195; 'Soloid' Mucin and Menthol Comp., page 226; and 'Tabloid' Mucin Compound, page 252)
- Nasal Attachment for 'Vaporole' Ammonium Chloride Inhaler (see page 271)
- Nasal Medicaments, 'Soloid' Brand (see page 226)
- Needles, for Hypodermic Dental and Serum Syringes.

  (Full list on application)
- Nessler's Solution, Glass Capsules of (see 'Soloid' Brand Products, page 229)
- New Tuberculin (W), 'Wellcome' Brand

(see page 265)

#### ' Nizin' (Trade Mark)-

A zinc salt of sulphanilic acid. An antiseptic which is readily soluble in water, and which, in the strengths recommended for use, is non-irritating and non-toxic. Bottles containing 1 oz., 4 oz. and 16 oz.

#### Normal Horse Serum, 'Wellcome' Brand

(see page 221)

Nozzles, Vulcanite, for Collapsible Tubes (see page 272)

'Opa' LIQUID DENTIFRICE, Aromatic, antiseptic, refreshing. (Trade Mark) Bottles of 2 fl. oz. and 4 fl. oz. (with sprinklers).

Ophthalmic and Hypodermic Pocket-Case, 'Tabloid' Brand (see page 163)

Ophthalmic Pocket-Cases, 'Tabloid' Brand

(see page 163)

#### OPHTHALMIC PRODUCTS

TRADE 'TABLOID' BRAND

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

'TABLOID' Ophthalmic products are minute in size, as thin as notepaper, and contain exact doses of pure drugs, prepared with a perfectly innocuous and rapidly soluble basis.

PREPARATION STRENGTH

#### 'TABLOID' BRAND

#### (Ophthalmic)-

,,	T	Alum .			 	gr.	1/250
,,	EE	Argyrol .			 	gr.	1/24
,,	X	Atropine St	alphate		 	gr.	1/600
,,	A	,,	,,		 	gr.	1/200
,,	В	Atropine H Cocaine Hy	ydrobrom drochlorid	ide le	 āā	gr.	1/200
1,	AA	Cocaine Hy	drochlorie	le	 	gr.	1/50
2.7	С	* ,,	,,		 ***	gr.	1/20

<sup>\*</sup> In tubes of 12. Others contain 25



#### Ophthalmic Products, 'Tabloid' Brand-continued

PREPARATION

STRENGTH

### 'TABLOID' BRAND

#### (Ophthalmic)-

- ,, BB Dionin ... 0.0005 gm. [gr. 1/130] ,, FF \* ,. ... 0.005 gm. [gr. 1/13] ,, 00 Duboisine Sulphate ... 0.00025 gm. [gr. 1/260]
- ,, AC \*\* Epinine' (Trade Mark) (3:4-Dihydroxyphenylethylmethylamine)

[approx. gr. 1/11]

0.000 gm.

" Eserine (see Physostigmine)

- ,, Y \*Euphthalmine Hydrochloride gr. 1/40
- ,, z \*Fluoresceïn ... gr. 1/250
- ,, H Homatropine Hydrochloride gr. 1/400
- ,, E \* ,, gr. 1/40
- ,, o \* {Homatropine Hydrochloride gr. 1/240 Cocaine Hydrochloride ... gr. 1/24
- ,, w\* {Homatropine Hydrochloride Cocaine Hydrochloride ää gr. 1/50
- ,, U Hyoscine Hydrobromide gr. 1/600
- ,, AD Physostigmine Salicylate gr. 1/4000
- ,, GG ., ,, ... gr. I/2000
- ,, F ,, ,, ... gr. 1/600
- ,, G \* Physostigmine Salicylate gr. 1/500 Tropacocaine Hydrochloride gr. 1/100
- ,, AE Pilocarpine Nitrate ... gr. 1/3000
- ,, K ,, ,, ... gr. 1/400
- ,, M {Pilocarpine Nitrate ... gr. 1/500 Cocaine Hydrochloride ... gr. 1/200
- ,, Scopolamine (see Hyoscine)
- ,, L \*Tropacocaine Hydrochloride gr. 1/30
- ,, XX Tuberculin ... 0.0002 gm. [gr. 1/324]

  A supply of 'Tabloid' Ophthalmic Control is included with each tube of 'Tabloid' Ophthalmic Tuberculin.
- ,, R Zinc Sulphate ... gr. 1/250
- ,, DD\* {Zinc Sulphate ... gr. 1/250 Cocaine Hydrochloride ... gr. 1/20

Also various other Ophthalmic products issued under the 'Tabloid' Brand.

<sup>\*</sup> In tubes of 12. Others in tubes of 25

#### OPHTHALMIC PRODUCTS

SOLOID' BRAND

The word 'Soloid' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

#### 'SOLOID' BRAND

#### (Ophthalmic)-

Corrosive Sublimate (Hydrarg. Perchlor.)

gr. 1/1000, tubes of 25

For other 'Soloid' Brand products suitable for Ophthalmic use, see pages 222-228.

#### Ophthalmic Veterinary Products, 'Soloid' Brand

(Full particulars sent on request)

'Paroleine'-A perfectly stable, odourless, colourless and (Trade Mark) tasteless oil. It is a useful solvent and vehicle for many of the remedies employed in treating diseases of the nose and throat. Bottles containing 4 fl. oz. and 1 lb. (183 fl. oz.).

#### PASTILLES, WARE 'TABLOID' BRAND

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

'TABLOID' Pastilles provide an agreeable vehicle for the gradual and prolonged application of medicaments to the mouth and throat, and in some cases may be used to secure the general effects of a drug. By their use, astringents, antiseptics, anæsthetics, expectorants and laxatives can be conveniently exhibited. The basis of the pastille is demulcent, increasing the efficiency of the active ingredients.

#### 'TABLOID' BRAND-

No.

- Ammonium Chloride and Liquorice Each contains Ammonium Chloride, gr. 1
- Benzoic Acid Compound without Cocaine 22.

	*		
R	Acidi Benzoici		 gr. 1/2
	Codeinæ		 gr. 1/10
	Menthol		 gr. 1/10
	Pulv. Ipecacuanhæ	***	 gr. 1/10
	Gummi Rubri		 gr. 1/2
	Ol. Menthæ Piperit	tæ	 9.5.



#### Pastilles, 'Tabloid' Brand-continued

#### 'TABLOID' BRAND-

No.

- ., 4. Codeine, gr. 1/8
- ,, 5. Glycerin
- ., 6. Glycerin and Black Currant
- ,. 7. Glycerin, Tannin and Black Current
- S. Glycerin, Tannin, Capsicum and Black Currant Each contains Tannin, gr. 1/2, and the equivalent of Tincture of Capsicum, B.P., min. 3/4, equal to Capsicum, gr. 3/80.
- ., 18. Laxative Fruit

Each contains Extract of Senna Fruit, gr. 5, pleasantly flavoured. This 'Tabloid' Pastille is extremely palatable, and facilitates the administration, to children and fastidious patients, of an efficient laxative.

- ,, 10. Lemon Juice
- ,, 11. Linseed, Liquorice and Chlorodyne
  Each contains Morphine Hydrochloride, gr. 1/120
- ,, 16. Menthol, gr. 1/8
- ,, 17. Menthol and Eucalyptus

R Menthol ... ... gr. 1/20 Ol. Eucalypti ... ... min. 1/2

- ., 12. Morphine and Ipecacuanha
  - R Morphinæ Hydrochloridi ... gr. 1/36 Pulv. Ipecacuanhæ ... gr. 1/12
- .. 20. Pectoral

Containing Liquorice, Squill, Tolu, Senega, Ipecacuanha, Wild Black Cherry, etc.

., 19. Pine Tar Compound

Containing Pine Tar, Terebene, Benzoin, Tolu, Ipecacuanha,

,, 13. 'Pinol,' min. I

Also various other Pastilles issued under the 'Tabloid' Brand

#### Phenacetin, 'Tabloid' Brand (see page 253)

#### ' Phenofax' BRAND CARBOLIC ACID OINTMENT

(Trade Mark) 'PHENOFAX' is an antiseptic sedative dressing which presents 4 per cent. of pure phenol in a bland basis, and is notable for its sedative effect on the skin and mucous surfaces. It disinfects, allays pain, and encourages granulation.

#### PHOTOGRAPHIC CHEMICALS

"AND 'TABLOID' BRAND

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

'TABLOID' Photographic Chemicals represent the acme of convenience and reliability, while their superior quality and accuracy in weight and composition ensure the Pure and best results. They entirely obviate the trouble reliable of weighing small quantities of chemicals, are superior in point of solubility to ordinary crystalline and other preparations, and prevent the disappointments occasioned by the deterioration of stock solutions. Their extreme compactness enables the tourist, traveller, or explorer to carry everywhere with him the materials for developing, fixing, etc., without materially increasing his impedimenta. Brand products have been proved by leading explorers, press photographers and overseas experts to resist the most trying atmospheric and climatic conditions. At home they save time, trouble and space.

#### Developers

The developers are packed in cartons, each containing the 'Tabloid' Reducing Agent, and the 'Tabloid' Accelerator specially prepared for use with that reducing agent.

#### 'TABLOID' BRAND 'TABLOID' BRAND (Photographic)— (Photographic)— ., Metol

- Amidol
- Edinol
- Eikonogen
- Glycin
- Hydroquinone (Quinol)
- Paramidophenol
  - Pyro-Metol (Imperial Standard Formula)

Ortol

Metol-Quinol

- \*Pyro-Soda (Ilford Formula)
- 'Rytol' (Trade Mark) Universal Developer
- \* In ordering this special developer, it is always necessary to quote 'Ilford Formula."

#### Intensifiers

#### 'TABLOID' BRAND

#### (Photographic)-

- Chromium Intensifier
- Mercuric Iodide and Sodium Sulphite



## Photographic Chemicals, 'Tabloid' Brand-continued Toners

#### 'TABLOID' BRAND

#### (Photographic)—

,, G	old Chlor	ide, gr. ½,	with	Borax, gr. 15 (B 1)
,,	**	,,	,,	Sodium Bicarbonate, gr. 15 (B 2)
,,	,,	,,	,,	Sodium Phosphate, gr. 15 (B 3)
,,	,,	,,	, ,	Sodium Tungstate, gr. 15 (B 4)
1,	,,	,,	,,	Sodium Formate Compound (B 5)
,,	,,	15	,,	Sulphocyanide Compound (B 6)
,,	.,	,,	,,	Thiosulphate Compound
				1

(Combined Bath for toning and fixing P.O.P.) (B 10)

The above are supplied in cartons containing sufficient for the preparation of six toning baths of 5 to 10 ounces or more. For convenience they may be ordered by their numbers, thus: 'Tabloid' Gold Toning, B 1, B 2, etc.

#### 'TABLOID' BRAND

#### (Photographic)-

- ,, Bleaching Compound
- ,, Blue Toner (for Bromide Prints, Gaslight Prints and Lantern Slides)
- ,, Copper Ferrocyanide Toning Compound (for Bromide Prints and Lantern Slides)
- ,, Green Toner (for Bromide Prints, Gaslight Prints and Lantern Slides)
- ., Platinum Toning Compound (for Matt P.O.P.)
- ., Sepia Toner (for Bromide Prints and Lantern Slides)
- ., Sulphiding Compound

#### Accessories

#### 'TABLOID' BRAND

	(Photographic)—		STRENGTH
,,	Alkali— 'Tabloid' Sodium Carbonate		gr. 44
,,	Density Reducers—	2.7.2	5. 11
	'Tabloid' Ammonium Persulphate		gr. II
	'Tabloid' Potassium Ferricyanide		gr. 2

## Photographic Chemicals, 'Tabloid' Brand-continued

Accessories—continuea	
BLOID' BRAND (Photographic)—	STRENGTH
· · · · · · · · · · · · · · · · · · ·	
'Tabloid' Sodium Thiosulphate (Hypo), Dried, gr. 28.5	Equals gr. 44 of crystals
Hardener—	
'Tabloid' Alum	gr. 10
Hardener and Clearer—	
'Tabloid' Alum and Citric Acid Com- pound	
Chrome Alum, gr. 5; Citric Acid, gr. 5	
Preservatives—	
'Tabloid' Potassium Metabisulphite	gr. 10
'Tabloid' Sodium Sulphite, Dried, gr. 5	Equals gr. 10 of crystals
Restrainers—	
	gr. I
'Tabloid' Potassium Bromide	gr. I
	(Photographic)—  Fixer—  'Tabloid' Sodium Thiosulphate (Hypo), Dried, gr. 28·5  Hardener—  'Tabloid' Alum  Hardener and Clearer—  'Tabloid' Alum and Citric Acid Compound Chrome Alum, gr. 5; Citric Acid, gr. 5  Preservatives—  'Tabloid' Potassium Metabisulphite 'Tabloid' Sodium Sulphite, Dried, gr. 5  Restrainers—  'Tabloid' Ammonium Bromide

## 'Tabloid' Potassium Ammonium

Chromate ... ... gr. 24

## For Direct Colour Photography

'Tabloid' Sodium Citrate ... gr. I

(with Autochrome, Dufay, Omnicolore and other Colour Plates)

#### 'TABLOID' BRAND

#### (Photographic)-

Sensitiser (for carbon tissue, etc.)-

,, Reversing Compound

,, Colour Plate Intensifier

(In development, 'Tabloid' 'Rytol' Universal Developer is used, see page 214)

Also various other Photographic products issued under the 'Tabloid' Brand.

### For Photographic Staining

#### 'SOLOID' BRAND

(Photographic)-

,, Photographic Stains (Blue, Green, Red, Salmon or Yellow), tubes of 6



## PHOTOGRAPHIC EXPOSURE RECORD AND DIARY, THE 'WELLCOME'

The most useful pocket-book for the photographer. Contains ruled pages for recording exposures, a diary for the year, also numerous technical articles and tables, and an exposure calculator which by ONE turn of ONE scale tells the correct exposure under any circumstance, etc., etc.

NORTHERN HEMISPHERE AND TROPICAL EDITION, for all countries (other than the United States of America), between the Arctic Circle and the Tropic of Capricorn (about 20° S.). Bound in light green canvas.

SOUTHERN HEMISPHERE AND TROPICAL EDITION, for all countries south of the Tropic of Cancer (about 20° N.). Bound in dark green canvas.

THE EDITION FOR THE UNITED STATES OF AMERICA.

Each Edition complete with wallet for proofs, etc., and pencil.

## PHOTOGRAPHIC OUTFIT, No. 905

A complete, compact chemical outfit for developing and fixing plates, films, bromide or gaslight papers, and for toning and fixing P.O.P.

STANDARD CONTENTS :-

'Tabloid' 'Rytol' Universal Developer, to make 88 ounces of solution; 'Tabloid' Sodium Thiosulphate (Hypo); 'Tabloid' Chromium Intensifier, to make 50 ounces of solution; 'Tabloid' Gold Chloride with Thiosulphate Compound (Combined Bath), to make 30 ounces of solution; 'Tabloid' Sepia Toner.

(Contents may be varied as desired)

Measurements:  $4 \times 4 \times 2\frac{1}{8}$  in. In rex red, royal blue, imperial green or bright scarlet enamelled metal.

(When ordering, please specify colours required)

### Pilocarpine Hydrochloride, 'Wellcome' Brand

Free from iso-pilocarpine and the inactive pilocarpidine (see also page 286).

' Pinol' (Distilled Essence of Pinus pumilio)
(Trade Mark)

A valuable stimulant, disinfectant and antiseptic in respiratory affections. The 'Tabloid' Pastille (see page 213) affords a pleasant means of securing prolonged continuous local action.

In \frac{1}{2} fl. oz. and I fl. oz. bottles.

Pneumococcus Vaccine, 'Wellcome' Brand (see page 268)

Pocket = Cases, Hypodermic, Ophthalmic, etc., 'Tabloid' Brand (see pages 159-166)

Rheumatic Fever Vaccine, 'Wellcome' Brand (see page 269)

Saccharin, 'Tabloid' Brand (see page 258) (See also 'Tabloid' 'Saxin,' page 258)

Saddle=Cases, 'Tabloid' Brand (see page 166)

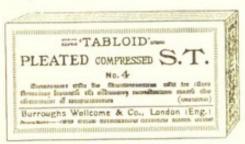
Saline Solutions for Intravenous Injection (see page 227)

Salol, 'Tabloid' Brand (see page 258)

# SANITARY TOWELS, PLEATED COMPRESSED, TRADE 'TABLOID' BRAND

Pleated Compressed Sanitary Towels were originated and introduced by Burroughs Wellcome & Co.

'TABLOID' Pleated Compressed Sanitary Towels possess several points of superiority over ordinary sanitary towels. They are made of materials of exceptional quality specially adapted for the purpose. Their highly absorbent pro-



'Tabloid' Pleated Compressed Sanitary Towel (No. 4) Half size

Their highly absorbent properties are particularly noteworthy. The delicate texture of the surface of these towels ensures perfect freedom from the slightest sense of discomfort in use. Owing to the extremely small space which they occupy, they are particularly convenient when travelling. Extreme com-

pactness is secured by compression, and perfect cleanliness ensured by the method of packing.

Four sizes are issued, each size in cartons of 12

'Saxin' (see 'Tabloid' 'Saxin,' page 258) (Trade Mark)



#### SERA, THADE 'WELLCOME' BRAND

The word 'WELLCOME' is a brand which designates fine products issued by Burroughs Wellcome & Co. To ensure the supply of pure and reliable preparations, this brand should always be specified when ordering.

The high reputation which these sera have deservedly obtained with the medical profession is constantly confirmed by the favourable reports received, and the accumulating evidence proves this high reputation to be maintained.

'Wellcome' Brand Sera are prepared in the Wellcome Physiological Research Laboratories, Brockwell Hall, London, (Eng.), under conditions which fulfil every requirement of modern science and under the immediate supervision of specialists of long and varied experience. The sera are not sent out until they have successfully passed rigorous sterility and toxicity tests; they are then issued in hermetically-sealed phials of convenient sizes.

Burroughs Wellcome & Co. act as distributing agents, and will endeavour to despatch orders for these sera immediately on receipt of letter or telegram.

Sera should be carefully kept in their original packings, in a cool, dark place, avoiding, as much as possible, variations of temperature.

#### 'WELLCOME' BRAND-

#### " \*Diphtheria Antitoxic Serum

In hermetically-sealed phials and in syringe-containers of 1000, 2000, 3000 and 4000 Ehrlich units.

#### " †Concentrated Diphtheria Antitoxin

In hermetically-sealed phials and in syringe-containers of 1000, 2000, 3000, 4000 and 5000 Ehrlich units.

The following Sera are issued in hermetically-sealed phials.

#### " Tetanus Antitoxic Serum

In phials of 10 c.c. containing 1500 units, and in phials of 10 c.c. (for veterinary diagnosis) containing 1000 units.

<sup>\* 1000</sup> units are contained in 2.5 c.c. or less

#### Sera, 'Wellcome' Brand-continued

#### 'WELLCOME' BRAND-

- "Anti=colon Bacillus Serum: from horses immunised against many strains of *Bacillus coli*, obtained mostly from cases of peritonitis and puerperal fever:—

  In phials containing 10 c.c. and 25 c.c.
- "Anti=dysentery Serum: from horses immunised against cultures of Bacillus dysenteriæ obtained from several cases of dysentery:—

  In phials containing 25 c.c.
- "Anti=gonococcus Serum: from horses immunised against cultures of gonococci obtained from cases of urethritis and gonorrhœal conjunctivitis.

  In phials containing 25 c.c.
- "Anti=meningococcus Serum: from horses immunised against cultures of various strains of the *Diplococcus intracellularis meningitidis* of Weichselbaum, obtained from several different sources:—

  In phials containing 25 c.c.
- ", Anti=staphylococcus Serum, Polyvalent: from horses immunised against various cultures of Staphylococcus pyogenes aureus, albus and citreus:—

  In phials containing 10 c.c. and 25 c.c.
- "Anti=streptococcus Serum, Erysipelas: from horses immunised against cultures from typical cases of erysipelas:— In phials containing 25 c.c.
- ,, Anti-streptococcus Serum, Polyvalent: from horses immunised against cultures of streptococci from a large number of sources, including organisms isolated from cases of:—

ERYSIPELAS, SCARLET FEVER, PUERPERAL FEVER, RHEUMATIC FEVER, SEPTICÆMIA, ANGINA, PNEUMONIA, ULCERATIVE ENDOCARDITIS.

In phials containing 10 c.c. and 25 c.c., also in syringecontainers of 10 c.c.



Sera, 'Wellcome' Brand-continued

### 'WELLCOME' BRAND-

- "Anti-streptococcus Serum, Puerperal Fever: from horses immunised against a number of cultures of Streptococcus from cases of puerperal fever:—
  In phials containing 10 c.c. and 25 c.c.
- "Anti=streptococcus Serum, Pyogenes: from horses immunised against several cultures of Streptococcus pyogenes from fatal cases:—

  In phials containing 25 c.c.
- "Anti-streptococcus Serum, Rheumatic Fever: from horses immunised against cultures from severe cases of acute rheumatism and of rheumatoid arthritis:—

  In phials containing 25 c.c.
- "Anti=streptococcus Serum, Scarlatina: from horses immunised against cultures from a number of severe cases of scarlet fever:—

  In phials containing 25 c.c.
- ,, Anti-typhoid Serum: from horses immunised against cultures of Bacillus typhosus from several cases of typhoid fever:—
  In phials containing 25 c.c.
- ,, Anti=venom Serum: from horses immunised against the venom of the Cobra and Russel viper (Daboia) In phials containing 25 c.c.
- "Normal Horse Serum, No. 1 In phials containing 10 c.c. and 25 c.c.

Also various other Sera issued under the 'Wellcome' Brand

Serum Syringes (B. W. & Co.) (see pages 200, 201)

Sewage and Water Analysis Case, 'Soloid' Brand, No. 502 (see page 175) 'Soamin' (Sodium Para-aminophenylarsonate)

(Trade Mark)

DOSE

An organic preparation of low toxicity as compared with arsenious acid or the inorganic salts of arsenic. It contains 22.8 per cent. of arsenium (As), and is soluble in three parts of water at body temperature and in five parts at 60° F. Used in syphilis, malaria, kala-azar, trypanosomiasis and other protozoal diseases. In bottles of 5 gm. and 30 gm.

(See special leaflet)

For full particulars, see 'Soamin' booklet

#### Soaps, Toilet and Medicated

(See 'Dartring' Brand Products, page 191)

#### TRADE 'SOLOID' BRAND PRODUCTS

The word 'SOLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. To ensure the supply of pure and reliable preparations, this brand should always be specified when ordering.

'Soloid' Brand Products are also issued in bottles of 500, with the exception of those put up in tubes only.

The series of 'Soloid' Brand products provides reliable antiseptics, astringents and anæsthetics; also convenient means of preparing stains for microscopic work, and test

solutions for water, sewage or urine analysis. The portability, accuracy in strength, uniform activity and ready solubility, which characterise them, present great advantages over stock solutions. Each product is so standardised in weight as to produce, when added to the required quantity of solvent, a solution of definite strength. ('Soloid' Corrosive Sublimate, gr. 8-75, dissolved in 16 fl. oz. of water, forms a solution of 1 in 1000.)

S	OLOID' BRAN	D-		STRENGTH	Issu	ed in
	Alkaline Compou		bage 2	226)	bots. of	bots. of
,,	Alum			gr. 10	_	100
,,	Alum and Zinc Su	alphate			25	-
	R Aluminis Zinci Sulphatis	gr. :				

Write the Brand in full, thus: R'Soloid' - - -

	Issue	ed in
'Soloid' Brand Products-continued		bots, of
'SOLOID' BRAND- STRENGTH	100131 01	DOLL OF
,, Alum and Zinc Compound,		
Strong	25	_
R Aluminis gr. 30 Zinci Sulphatis gr. 15		
" Antiseptic and Alkaline Com-		
pound (see page 226)		
" Argenti Nitratis (see Silver Nitrate)		
,, Argyrol, tubes of 12 gr. 1	-	_
,, ,, ,, 6 gr. 5·45		-
One in one drachm of water = 1 in 10 solution (approx.).		
,, Atropine Sulphate, tubes of 6 gr. 0.545		_
One in one drachm of water = 1 in 100 solution (approx.).		
,, Atropine and Cocaine, tubes		
of 6	_	
R Atropinæ Sulphatis gr. 0.272 Cocainæ Hydrochloridigr. 1.09		
One in one drachm of water = 1 in 200 Atropine Sulphate, and 2 in 100 Cocaine Hydrochloride (approx.).		
,, Black Mercurial Lotion	25	
One, powdered, and shaken with one fluid ounce of water, makes a lotion corresponding to Lotio Hydrargyri Nigra, P.B.		
,, Boric Acid (scented with Otto		
of Rose) gr. 6	25	
" Boric Acid (unscented) gr. 15	50	· -
,, Boric Acid and Zinc Sulphate		
(scented with Otto of Rose)	25	_
R Acidi Borici gr. 6 Zinci Sulphatis gr. 1/2		
,, Carbolic Acid (Phenol),		
tubes of 25 gr. 5	-	-
,, ,, ,, ,, I2 gr. 20	_	
,, ,, ,, ,, 6 gr. 60	-	_
,, Chinosol gr. 1.75	25	
,, ,, gr. 8·75	25	100

Write the Brand in full, thus: R Soloid'-

'Soloid' Brand Products-continued	Issue	d in
'SOLOID' BRAND— STRENGTH	bots, of	bots, of
,, Cocaine Hydrochloride,		
tubes of 25 gr. 1/2	_	100
,, ,, ,, ,, gr. I	_	100
,, ,, ,, gr. 5	25	_
,, *Cocaine and Eucaine,		
tubes of 25, of each gr. 1/2	-	_
,, Copper Sulphate gr. 1	-	100
,, Corrosive Sublimate (Hydrarg.		
Perchlor.) (Ophthalmic), gr. 1/1000		
(See page 212)		
,, Corrosive Sublimate (Hydrarg.		
Perchlor.) gr. 1.75	-	100
One in four fluid ounces of water = 1 in 1000 solution.		
,, Corrosive Sublimate (Hydrarg.		
Perchlor.) gr. 8.75	25	100
One in one pint of water = 1 in 1000 solution.		
,, Corrosive Sublimate (Hydrarg.		
Perchlor.) gr. 17.5	25	100
One in one pint of water = 1 in 500 solution.		
,, Eucaine Hydrochloride		
tubes of 25 gr. 1*	_	-
,, ,, ,, gr. 5	25	_
,, Eucaine Lactate gr. I	25	_
,, ,, ,, gr. 5	25	_
,, 'Eucalyptia' Compound (see page 226)		
,, Goulard Lotion (see Lead		
Subacetate)		
,, Homatropine and Cocaine,		
tubes of 6	_	_
R Homatropinæ Hydro-		
bromidi gr. o·545 Cocainæ Hydro-		
chloridi gr. 1.09		
,, Homatropine Hydrobromide,		
tubes of 6 gr. 0.545		-

<sup>\*</sup> Also issued in bottles of 500

Write the Brand in full, thus: R Soloid -

Soloid' Brand Products-continued	Issue	d in
'SOLOID' BRAND— STRENGTH	bots, of	bots, of
,, Homatropine Methylbromide		
and Cocaine, tubes of 6  R Homatropinæ Methyl-		
bromidi gr. 0·545 Cocainæ Hydro-		
Cocainæ Hydro- chloridi gr. 1-09		
,, Hydrarg. Perchlor. (see Cor-		
rosive Sublimate, page 212)		
,, Iodic-Hydrarg. (see Mercuric		
Potassium Iodide, below)		
,, Lead and Opium Lotion	25	_
R Plumbi Acetatis gr. 2	-5	
Tinct. Opii min, 20		
" Lead Subacetate gr. 10	25	_
One in five fluid ounces of distilled water yields a solution corres-		
ponding to Liquor Plumbi		
Subacetatis Dilutus.		
,, Mercuric Chloride (see Corro-		
sive Sublimate)		
,, Mercuric Potassium Iodide		
(formerly known as Iodic-		
Hydrarg.), tubes of 25 gr. 1.75 One in four ounces of water =	_	100
t in 1000 solution (frequently		
known as Mercury Biniodide Solution).		
,, Mercuric Potassium Iodide		
(formerly known as Iodic-		
Hydrarg.) gr. 4.37	25	100
One in 10 ounces of water =	-5	
1 in 1000 solution (frequently		
known as Mercury Biniodide Solution).		
,, Mercuric Potassium Iodide		
(formerly known as Iodic-		
Hydrarg.) gr. 8-75	25	100
One in one pint of water = 1 in tooo solution (frequently known		
as Mercury Biniodide Solution).		
" Mercury Oxycyanide,		
tubes of 25 o·1 gm. [gr. 1-1/2]	-	100
,, ,, ,, o-25 gm. [gr. 3-3/4]	25	100
,, ,, ,, o·5 gm. [gr. 7-3/4]		100

Write the Brand in full, thus: " Soloid' \_

'Soloid' Brand Products-continued	Issue	ed in
'SOLOID' BRAND— STRENGTH	bots, of	bots, of
,, (Nasal)		
R Boracis gr. 5 Sodii Chloridi gr. 5	25	100
R Sodii Bicarbonatis gr. 5 Acidi Carbolici gr. 1/2 Boracis gr. 5	25	100
R Sodii Bicarbonatis gr. 8 Boracis gr. 8 Sodii Benzoatis gr. 1/3 Sodii Salicylatis gr. 1/3 Ol. Eucalypti min. 1/6 Thymol gr. 1/6 Menthol gr. 1/12 Ol. Gaultheriæ min. 1/12	25	100
,, ,, Phenol Compound  R Sodii Bicarbonatis gr. 12 Acidi Carbolici gr. 1-1/2 Sodii Chloridi gr. 2	25	-
,, ,, Sodium Bicarbonate  Compound  R Sodii Bicarbonatis gr. 5  Boracis gr. 5  Sodii Chloridi gr. 5	25	100
,, ,, Sodium Bicarbonate Compound, Saccharated  R Sodii Bicarbonatis gr. 5 Boracis gr. 5 Sodii Chloridi gr. 5 Sacchari Albi gr. 5	25	100
,, Naso-Pharyngeal Compound  R Sodii Chloridi gr. 7 Boracis gr. 2-1/2 Acidi Borici gr. 3/4 Sodii Benzoatis gr. 1/2 Menthol gr. 1/50 Thymol gr. 1/100 Cocainæ Hydro- chloridi gr. 1/6 Ol. Gaultheriæ min. 1/20	25	100

Write the Brand in full, thus: R Solord

LC - L - LL D L D L L L		Issu	ed in
'Soloid' Brand Products-continued			bots, of
'SOLOID' BRAND-	STRENGTH	10015. 01	bots. or
" 'Nizin' (Trade Mark)	gr. 2	-	100
A zinc salt of sulphanilic acid	gr. 20	25	_
" Paraform " Phenol Compound (see page 226)	gr. 5	_	100
,, Potassium Permanganate	gr. I	-	100
,, Potassium Permanganate and	gr. 5	25	100
Alum R Potassii Permanganatis gr. 3 Aluminis gr. 5		-	100
,, Protargol		_	100
,, ,,	gr. 4	25	100
R Calcii Chloridi gr. 7/10 Potassii Chloridi gr. 7/10 Sodii Bicarbonatis gr. 7/20 Sodii Chloridi gr. 31-1/2 Dextrosi gr. 3-1/2 Two, dissolved in one pint of boiled (sterile) water for intravenous injection at 100° F.	or 1*		
,, Silver Nitrate, tubes of 25		-	-
;; ;; ;;		25	
Sodium Bicarbonate  One in five fluid ounces of water = 2 per cent. solution (approx.).  ,, Sodium Bicarbonate Compound (see page 226)  ,, Sodium Bicarbonate Compound, Saccharated (see page 226)	gr. 44	25	
Two, dissolved in one pint of boiled (sterile) water form a solution containing 0.9 per cent. of Sodium Chloride for intravenous injection at 100° F.	gr. 40	-	_
,, Sodium Chloride, tubes of 6 One, dissolved in one pint of boiled (sterile) water, for intravenous injection at 100° F.	gr. 80	_	_

\* Also issued in bottles of 500

Write the Brand in full, thus:

RiSoloid'- - -

'Soloid' Brand Products-continued	Issu	ed in
'SOLOID' BRAND- STRENGTH	bots, of	bots, of
,, Sodium Citrate and Sodium Chloride gr. 3 Sodii Citratis gr. 3 Sodii Chloridi gr. 16	25	100
,, Zinc Chloride gr. 5	25	_
,, Zinc Permanganate gr. 1/8	_	100
,, Zinc Sulphate gr. 1	-	100
,, ,, ,, gr. 10	_	100
,, Zinc Sulphocarbolate gr. 2	_	100
,, ,, gr. 10	_	100

Also a wide range of other products issued under the 'Soloid' Brand.

## 'SOLOID' BRAND PRODUCTS FOR TESTING PURPOSES, etc.

#### For Urine Analysis

'SOLOID' BRA	AND-	-		ST	REN	GTH	Issued in tubes of
,, Citric Acid					gr.	I	20
,, Fehling's Test,	for p	reparis	ig Fehl	ing's			
Solution, cart	ons of	24					
,, Indigo Test for (Sodium	r Suga Nitro	r pheny	lpropio	late)	gr.	1/4	20
,, Picric Acid					gr.	I	20
,, Potassium Ferr	ocyani	de			gr.		20
" Salicyl-sulphon	ic Aci	d			gr.	2	16

### For Water Analysis

'SOLOID' BRAND	_			STRENGTH
,, Ammonium Chloride	2		 	0.00016 gm.
,, Lead Acetate			 	0.0184 gm.
" Meta-phenylenedian	nine	Sulphate	 	o·oi gm.
,, Oxalic Acid			 	o∙ı gm.
., Potassium Chromate			 	o∙0065 gm.
,, Potassium Ferrocyan	nide		 	0.013 gm.
			 	0.00144 gm.



#### 'Soloid' Brand Products for Testing Purposes, etc.-continued

#### For Water Analysis-continued

· S	OLOID' BRAN	D-				STRENGTH
	Potassium Perman	ganate				0.00395 gm
,,	Silver Nitrate					o∙0096 gm.
,,	Soap					
. ,,	Sodium Acid Sulp	hate				0.324 gm.
,,	Zinc Dust					0·13 gm.
٠,	Zinc Sulphide					0.25 gm.
		In pac	kages	of 25		
,,	Nessler's Solution,	in herr	netical	ly-seale	ed glas	ss capsules.
	Boxes of 30 cap	osules, e	ach co	ntainin	g	0.5 c.c.
	,, 24	,,	,,			2 c.c.

## For Sewage Analysis

'SOLOID' BRAND-			STRENGTH
,, Oxalic Acid			 o·0079 gm.
,, Potassium Permangana	ate		 0.00395 gm.
,, Pyrogallic Acid			 0.032 gm.
" Sodium Hydroxide			 0·13 gm.
In	packages o	of 25	

#### Test Indicators

'SOLOID' BRAND-	'SOLOID' BRAND-
,, *Indigo-Carmine	,, *Phenolphthalein
,, *Lacmoid	,. *Rosolic Acid
" *Methyl Orange	,, Starch, o.5 gm.
* One dissolved in 10 c.c. of	solvent forms the Test Indicator

## In tubes of 10

#### Microscopic Stains

'SOLOID' BRAND-				STRENGTH
"Bismarck Brown, pure				o∙ı gm.
,, Borax Methylene Blue				
., Ehrlich Triple Stain				
" Eosin, pure		***		o·I gm.
,, Eosin-Azur (for Giemsa	stainin	g)		0.038 gm.
,, Eosin-Methylene Blue (L	ouis Jer	ner's S	tain)	0.05 gm.

'Soloid' Brand Products for Testing Purposes, etc.—continued

#### Microscopic Stains-continued

'SOLOID' BRAND-		STRENGTH
,, Fuchsine (Basic), pure		 o∙ı gm.
"Gentian Violet, pure		 o·1 gm.
" Gram's Iodine Solution		 15 c.c.
,, Hæmalum		
"Hæmatoxylin, pure		 o∙ı gm.
,, Methylene Blue, pure		 O·I gm.
" Romanowsky Stain (Leishma	in's Powder)	 0.015 gm.
,, Thionin Blue, pure		
,, Toison Blood Fluid		
In tube	es of 6	
Methyl Alcohol, pure (see pag	e 209)	

#### Culture Media

#### 'SOLOID' BRAND-

,, Bile Salt Agar-Agar (MacConkey)
,, Conradi-Drigalski Medium
,, Nutrient Agar-Agar
,, Nutrient Broth

Also a wide range of other products issued under the 'Soloid' Brand.

### Strophanthus Tincture (B. W. & Co.)

(Physiologically standardised, Wellcome Physiological Research Laboratories.)

Prepared in accordance with the 1898 British Pharmacopœia, from carefully-selected strophanthus seeds.

In bottles containing ½ and I fl. oz. and I lb. (18 fl. oz.)

Strophanthus Tincture, 'Tabloid' Brand (see page 260)

Suppositories (see 'Enule' Rectal Suppositories, pages 196-197; and 'Hazeline' Suppositories, page 199)

Surgical Dressings, 'Tabloid' Brand (see pages 191-194)

Syringes, Dental Hypodermic, and Serum (see pages 200, 201)

#### "TABLOID' BRAND PRODUCTS

The word 'TABLOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. To ensure the supply of pure and reliable preparations, this brand should always be specified when ordering.

'Tabloid' Brand Products are also issued in bottles of 500, with the exception of those put up in tubes only.

'Tabloid' Brand Products are prepared from ingredients of the highest quality and of extreme purity. They are accurate in dosage, and keep well in any climate. Special consideration has been given to adapting 'Tabloid' preparations to particular purposes. Those intended for general therapeutic effect are made to disintegrate immediately; those intended to produce local effects (as upon the throat) dissolve slowly and enable prolonged application of the medicament to the affected part; unpleasant drugs are coated with a thin film of white sugar, readily soluble in the stomach, while those intended to act after leaving the stomach are coated with keratin, soluble only in the alkaline

Issued in oval | bots, of 'TABLOID' BRAND-DOSE bots, of ,, Acetanilide (see Antifebrin) Aconite Tincture, min. 1/4 ... I frequently 100 min. I ... I frequently 100 min. 5 I to 3 30 100 ., Aloes and Iron (B.P. Pill), I to 2 100 " Aloes and Myrrh (B.P. Pill), I to 2 gr. 4 100 ., Aloin, gr. 1/10 I frequently 100 ,, gr. I/2 I to 4 25 100 ,, Aloin Compound I to 2 after 50 100 ... gr. 1/5 R Aloini ... meals, or Strychninæ Sulphatis gr. 1/60 I to 3 at Ext. Belladonnæ ... gr. 1/8 bed-time Pulv. Ipecacuanhæ ... gr. 1/16 Stomachic and tonic laxative combination of especial value in chronic constipation.

Write the Brand in full, thus:

secretions of the intestine.

of Tabloili - - -

'Tabloid' Brand Products-c	ontinued	Issue	
'TABLOID' BRAND-	DOSE	bots, of	bots, of
" Ammoniated Quinine	I	25	100
Each contains Quinine and Ammonium Bicarbonate to correspond with one fluid drachm of the official tincture.			
,, Ammonium Bromide, gr. 5	1 to 6	-	100
,, ,, ,, gr. 10	I to 3		100
,, Ammonium Carbonate, gr. 3	1 to 3		100
., Ammonium Chloride, gr. 3	I to 6	25	100
,, ,, gr. 5	I to 4	_	100
,, ,, gr. 10	I to 2		100
,, Ammonium Chloride and			
Re Ammonii Chloridi gr. 1-1/4 Boracis gr. 3-3/4	1 as required	-	100
,, Ammonium Chloride and Liquorice	I as required	25	100
R Ammonii Chloridi gr. 3 Ext. Glycyrrhizæ gr. 2 ,, Ammonium Chloride Com-			
pound gr. 1  Potassii Chloridi gr. 2  Pulv. Cubebæ gr. 1/4  Ext. Glycyrrhizæ gr. 1  Of special value in catarrh of the pharynx, larynx, etc.	I as required	25	100
,, Ammonium Hippurate, gr. 1	I or more	-	100
,, Antifebrin (Acetanilide), gr. 2	I to 2 I (in special	25	100
,, ,, ,, gr. 5	cases)	25	100
R Antifebrini (Acetanilidi), P.B gr. 2 Camphoræ Monobromatæ gr. 1 Caffeinæ Citratis gr. 1	I	-	100
,, Antimony, Tartarated, gr. 1/50		100	-
,, Antipyrine (Phenazone), gr. 2-1/	2 I or more	25	100
,, 'Aol' ( <i>Trade Mark</i> ), 0·3 gm. [gr. 4-1/2] (Capsule), a	I to 4	25	100
derivative of Santalum			
album, boxes of 50	2 or more	-	-

Write the Brand in full, thus: R Dabloid

'Tabloid' Brand Products-co	ontinued	Issue	ed in
'TABLOID' BRAND-	DOSE	oval bots, of	bots. of
" Apomorphine Hydrochloride,	1 repeated	50	_
gr. 1/50			
and Morphine Hydro-			
chloride, of each, 0.0025 gm.			
	1 to 4	25	_
" Apomorphine Compound	1 as required	25	100
R Apomorphinæ Hydrochloridi gr. 1/50 Ammonii Chloridi gr. 3 Ext. Glycyrrhizæ gr. 1-1/2			
,, Aromatic Chalk Powder with		1000000	
	2 to 4 or more		100
,, Arsenious Acid, gr. 1/100	1 to 6	100	
,, ,, ,, gr. 1/50		100	
,, ,, ,, gr. I/20	I	100	
., Arsenical Compound	I to 2	_	100
R Acidi Arseniosi gr. 1/100 Ferri Sulph. Exsicc. gr. 1 Calcii Sulphidi gr. 1/4 Ext. Gentianæ gr. 2			
" Asafetida and Opium Com-			
pound	I to 2	_	100
R. Asafetidæ gr. 1 Camphoræ gr. 1 Pulv. Opii gr. 1 Pulv. Piperis Nigri gr. 1			
,, 'Aspirin,' gr. 5	I to 3	25	100
,, Astringent Mixture (corre-			
sponding to the formula of			
the Board of Health, London,			2 22 200
Eng.)	I to 2	_	100
R Conf. Aromat. (P.B., 1885) gr. 4-1/2 Pulv. pro Mist.			
Cretæ gr. 20 Ammonii Bicarb gr. 1/2 Tinct. Card. Co min. 9 Tinct. Catechu min. 15 Tinct. Opii min. 1-1/2 Ol. Cinnamomi min. 1/8			
" Atropine Sulphate, 0.0005 gm.			
[gr. 1/130]	I	25	_

Write the Brand in full, thus:

Viabloid: - - -

' T	abloid' Brand Products-c	Issu	ed in	
'T	ABLOID' BRAND-	DOSE	oval bots, of	bots. of
	В			
,,	Belladonna Tincture, min. 1	I frequently	100	_
,,	,, ,, min. 5	I to 3	48	100
,,	Benzoic Acid, gr. 5	1 to 3	_	100
,,	Benzoic Acid Compound, without Cocaine  R Acidi Benzoici gr. 1/2 Codeinæ gr. 1/10 Menthol gr. 1/10 Pulv. Ipecacuanhæ gr. 1/10	1 as required	25	100
	Ol. Menthæ Piperitæ min. 1/16 Gummi Rubri q.s. Highly efficient in the irritating cough of pharyngitis, etc.			
,,	Benzo-naphthol, gr. 5	I to 2	_	100
,,	Beta-naphthol, gr. 3	1 to 3	_	100
,,	Beta-naphthol Compound  R Beta-naphthol gr. 1 Carbonis Ligni gr. 4 Ol. Menthæ Pip min. 1/2	I to 4	25	100
, ,	Bismuth Carbonate, gr. 5	I to 4	25	100
,,	Bismuth Salicylate (Physio-			
	logically Pure), gr. 5	I to 4	25	100
,,	Bismuth Subgallate, gr. 5	I to 4	25	100
,,	Bismuth Subnitrate, gr. 5	I to 4	25	100
,,	,, gr. 10	I to 2		100
,,	Bismuth and Dover Powder  Bismuthi Subnit gr. 2-1/2 Pulv. Ipecacuanhæ  č Opio gr. 2-1/2	I to 6	-	100
,,	Bismuth and Soda gr. 2-1/2 Bismuthi Subnit gr. 2-1/2 Sodii Bicarbonatis gr. 2-1/2	I to 4 or more	-	100
,,	Bismuth Subsantonate Compound, bottles of 25  Bismuthi Subsantonatis gr. 4 Phenolphthalein gr. 1-1/2 (Made with a chocolate basis)	I to 2	-	100

Write the Brand in full, thus:

| Jabloid -

'Tabloid' Brand Products-c	Issued in		
'TABLOID' BRAND-	DOSE	oval bots, of	bots, of
			100
,, Bismuth, Rhubarb and Soda  R Bismuthi Subnit gr. 3 Pulv. Rhei gr. 1 Sodii Bicarbonatis gr. 2 Pleasant and easy to take: the unpleasantness of the ordinary nauseous mixture being avoided.		25	100
" Blaud (Pil. Ferrugin.), gr. 5	I to 3	-	100
Each represents 20 per cent. of permanent ferrous carbonate.	I to 2	-	100
,, Blaud Pill and Aloin  B. Pil. Ferrugin. (Blaud) gr. 5 (= 20 % Ferri Carbonatis) Aloini gr. 1/20	1 to 4	_	100
R Pil. Ferrugin. (Blaud) gr. 5 (= 20 % Ferri Carbonatis) Acidi Arseniosi gr. 1/64	I to 4	_	100
,, Blaud Pill and Cascara  R Pil. Ferrugin. (Blaud) gr. 5 (= 20 % Ferri Carbonatis) Ext. Cascaræ Sagradæ gr. 1/2 ,, Blaud Pill, Arsenic and	i increased to 4	_	100
Strychnine  R Pil. Ferrugin. (Blaud)gr. 5 (= 20 % Ferri Carbonatis) Acidi Arseniosi gr. 1/100 Strychninæ gr. 1/100	I to 4	_	100
R Pil. Ferrugin. (Blaud) gr. 10  (= 20 % Ferri Carbonatis) Pulv. Capsici gr. 1/4 Aloini gr. 1/30 Strychninæ gr. 1/30 Acidi Arseniosi gr. 1/30	I	_	100
,, Blue Pill, gr. 4 Each contains gr. 1-1/3 of pure metallic Mercury.		25	100
Hyoscyamus  R Pil. Hydrargyri, P.B. gr. 2 Pil. Colocynthidis et Hyoscyami, P.B. gr. 4	I to 2	25	100

Write the Brand in full, thus:

'Tabloid' Brand Products-c	ontinued	Issue	
'TABLOID' BRAND-	DOSE	bots, of	bots, of
" Blue Pill and Rhubarb Com-			
pound	I to 2	_	100
R Pil. Hydrargyri, P.B. gr. 2-1/2 Pil. Rhei Comp., P.B. gr. 2-1/2			
,, Blue Pill, Squill and Digitalis  R. Pil. Hydrargyri, P.B. gr. 1 Pulv. Scillæ gr. 1-1/2 Pulv. Digitalis gr. 1	1 to 2	-	100
,, Bone Medulla, gr. 5 (Capsule),			
boxes of 50	I or more	-	_
,, Borax, gr. 5	I to 4 or more	25	100
,, Boric Acid, gr. 5	I to 3		100
,, Bromides Compound (see Sodium Bromide Compound) ,, Butyl-Chloral Hydrate and			
Gelsemine gr. 3  Gelseminæ Hydratis gr. 3  Gelseminæ Hydrochloridi gr. 1/200	I	-	100
С			
,, Caffeine Citrate, gr. 2	I or more	-	100
,, Caffeine Citrate, Effervescent,			
B.P., gr. 60, tubes of 25	I to 2	_	-
,, Caffeine Compound gr. 1 Re Caffeinæ gr. 1 Antipyrini (Phenazoni, P.B.) gr. 3	I to 4	25	100
R. Calcium Carbonate Compound R. Calcii Carb. Præcip. gr. 3-1/2 Mag. Carb. Pond. gr. 2-1/2 Bismuthi Carbonatis gr. 2	I to 4 before meals, or I occasionally	25	100
,, Calcium Iodo-ricinoleate, gr. 3			
(Capsule), boxes of 50	I to 3		_
,, Calcium Lactate, gr. 5	I to 3	25	100
,, Calcium Sulphide, gr. 1/10	I or more	100	
,, ,, gr. 1/4	1 to 4	_	100
,, ,, gr. 1/2	I to 2		100
,, ,, ,, gr. I	I	-	100

Write the Brand in full, thus: R Tabloid -

'Tabloid' Brand Products-continued	Issue	ed in
		bots, of
TABLOID BARRA	bots, of	
,, Calomel, gr. 1/10, gr. 1/6,	100	
gr. 1/4 and gr. 1/2 1 or more	100	100
,, ,, gr. I I to 5		100
,, ,, gr. 2 1 to 3		100
,, ,, gr. 3 1 to 2		100
" " 5. 3		
,, Calomel and Creosote 1 to 5	_	100
R Hydrarg. Subchlor. gr. 1/6 Creosoti min. 1		
" Calomel and Jalap I to 4		100
R Hydrarg, Subchlor, gr. 1 Pulv, Jalapæ gr. 2		
,, Calomel and Piperine, of each,		
gr. 1/2 1 repeated	-	100
,, Calomel, gr. 1/10, and Sodium		
Bicarbonate, gr. 1 1 or more	25	100
,, Calomel, gr. 1/4, and Sodium		
Bicarbonate, gr. 1 1 or more	25	100
"Calomel, gr. 1/2, and Sodium	2.5	100
Bicarbonate, gr. 2-1/2 I or more	25	100
" Calomel, gr. I, and Sodium	25	100
Bicarbonate, gr. 5 I or more	25	100
,, Calomel Compound (Plummer	25	100
Pill, B. P.), gr. 4 I to 2	25	100
,, Camphor Compound Tinc-	100	
ture (Paregoric), min. 2 I frequently	100	
,, Camphor Compound Tinc- ture (Paregoric), min. 5 1 frequently	48	100
	40	100
,, Camphor Compound Tinc- ture (Paregoric), min. 15 1 to 4	36	100
	3	100
,, Camphor Essence (Saturated) 2 to 3	25	
,, Cane Sugar, gr. 3	_	100
,, Cannabis Indica Tincture,	0	
B.P., min. 5 I to 3	48	100
Prepared from Physiologically- controlled Extract.		
,, Capsicum Tincture, min. 1 I frequently	100	_
,, ,, min. 5 I to 3 or more		100



'Tab	loid' B	rand l	Prod	ucts-	continued	Issue	
TA	BLOID	) BRA	N D —		DOSE	bots, of	bots. of
	apsules-						
.5	and Men	noleate, ( oil, Junipo thol Com il, Terebe	Carboli er Oil, pound	c Acid, Phenol , Sandal			
,, C	arbolic A	cid (Phe	enol),	gr. 1/4			
	(for the				1 as required	25	100
,, C	arbolic A	cid (Phe	enol),	gr. 1/2			
**					I as required	25	100
C	Carbolic A	Acid (Pl	nenol)	, gr. I			
	(Capsule				I to 3	_	_
0	Carbolic	Acid wi	th Si	ipperv			
,, -	Elm, bo	ttles of a	25		1 occasionally	_	100
	Each of	contains (	Carbol	ic Acid,			
,, (	Carlsbad	Salt, I	Efferv	escent,	I or more as	S	
	Artificia	d, tubes	of 25		required	_	_
,, C	Cascara Sa	agrada(I	Dry E	xtract),			
				gr. I	I or more	25	100
,,	* *	2.2	.,	gr. 2	I to 4	25	100
,,	,,	,,	,,	gr. 3	I to 3	25	100
,,	* * *	2.7	,,	gr. 4	I to 2	25	100
,,	,,	,,	,,	gr. 5	I as required	25	100
	'Tab has premi matic out th	uniform loid' Ca established ier position on of phys ne world.	scara ed for on in icians	Sagrada it the the esti- through			
,, (	Cascara C	ompoun	d		I to 4	25	100
]	Iridini Ext. N	scaræSagi uonymi S ucis Vom voscyami V	icci g	r. 1/2 r. 1/2 r. 1/16			
,, (	Cascara a	nd Gent					
j	Ext. Be Ext. G	ucis Vom elladonnæ entianæ	rad. g icæ g g	npound r. 2 r. 1/5 r. 1/10 r. 1 r. 1/10	I to 3	25	100

Tabloil -



	antinuo/	Issue	d in
'Tabloid' Brand Products-co	171111111111111111111111111111111111111		bots, of
'TABLOID' BRAND-	DOSE	bots, of	
,, Castor Oil, min. 5 (Capsule),			
boxes of 50	I or more	-	-
,, Cathartic Compound	I to 2	25	100
R Ext. Colocynth. Co. gr. 1-1/3 Hydrarg. Subchlor. gr. 1 Ext. Jalapæ gr. 1 Pulv. Cambogiæ gr. 1/4 A cathartic compound of exceptional purity of ingredients and of proved reliability.			
" Cerebrin, gr. 5	I or more	-	100
	I to 2		100
,, Charcoal (Pure Willow), gr. 5,	I or more as		
bottles of 40	required	_	100
" Chemical Food (Phosphates			
	I to 2	25	100
Containing the combined Phosphates of Iron, Calcium, Sodium and Potassium, equivalent to drachm 1/2 of Standard Compound Syrup of Phosphates.			
,, Chemical Food (Phosphates			
Compound), dr. I	I	25	100
Equivalent to drachm t of Standard Compound Syrup of Phosphates. Possesses the advantages of permanence, portability, and the absence of free phosphoric acid present in the ordinary syrup as a solvent.			
,, Chinosol, gr. 5	I	25	100
" Chloralamide, gr. 5	3 to 6	_	100
" Chloral Hydrate, gr. 5	I to 4	_	100
,, ,, ,, gr. 10	I to 2	_	100
,, Chocolate, gr. 60, boxes of 12		_	_
" Cinchona Tincture, min. 30	I to 2	36	100
,, Cinchona Compound Tincture,			
min. 30		25	100
,, Citric Acid, gr. 5 Cocaine Hydrochloride (see 'Soloid' Brand Products,	I to 4		100
7-3-3-47			

Ry Tabloid

· Т	abloid' Brand Products—	continued	Issu	ed in
	ABLOID' BRAND-	DOSE	oval bots, of	bots, of
,,	Cocoa Essence, gr. 60, boxes			
	of 12		-	_
,,	Codeine, gr. 1/4	I to 4 or more	25	100
	,, gr. 1/2		25	100
	Codeine and Nux Vomica		25	_
	R Codeinæ Phosphatis gr. 1 Ext. Nucis Vomicæ gr. 1/4			
,,	'Coffee-Mint'	I to 4 or more	25	100
	R Sodii Bicarb gr. 3 Ammonii Bicarb gr. 1/16 Ext. Coffeæ gr. 1/2 Cerii Oxalatis gr. 1/4 Ol. Menthæ Piperitæ q.s.			
	Gastric and general stimulant, especially valuable in flatu- lence, in the nausea associated with liver disorder, and in the vomiting of pregnancy.			
,,	Colchicine Salicylate, gr. 1/32	I to 2	-	100
,,	Colchicum Compound	I to 2	_	100
	R Ext. Colchici gr. 1/2 Acidi Salicylici gr. 3 Colocynth and Hyoscyamus			
	(B. P. Pill), gr. 4	1 to 2	_	100
,,	Colocynth Compound (B.P. Pill), gr. 4	I to 2	_	100
,,	Corrosive Sublimate (see Hydrarg. Perchlor., page 245)			
,,	Cotarnine Hydrochloride,			
	gr. 3/4, bottles of 25 Cubeb and Belladonna, Effer-	I to 3	-	-
.,,	vescent gr. 1/2  R Pulv. Cubebæ gr. 1/2  Ext. Belladonnæ gr. 1/20	I as required	_	100
,,	Cubeb Compound  R Oleo-resinæ Cubebæ gr. 1/4 Ammonii Chloridi gr. 1/2 Glycyrrhizini Ammoniatæ gr. 1/4	I as required	25	100
,,	Dentifrice		_	100
,,	Didymin (Testicular Sub-	I increased		
	stance), gr. 5	to 4	-	100

Write the Brand in full, thus: & Dabloid

'Tabloid' Brand Products-continued	Issu	ed in
'TABLOID' BRAND— DOSE	oval bots, of	bots, of
,, Digitalin (Amorphous),		
gr. 1/100 1 to 3	50	-
., Digitalin (Crystalline), gr. 1/250 1	50	_
,, Digitalis Tincture, min. 1 1 frequently	100	
Prepared from Physiologically- standardised Tincture.	48	100
"Donovan Solution, min. 5 I to 4	_	100
One represents min. 5 of Liq. Arsenii et Hydrargyri Iodidi, P.B., containing Arsenious Iodide and Mercuric Iodide, of each, gr. 1/22.  Dover Powder (Ipecacuanha		
with Opium), gr. 1/4 I frequently  Each contains Opium and Ipecacuanha, of each, gr. 1/40.	100	-
,, Dover Powder (Ipecacuanha		
with Opium), gr. 5 I to 3  Each contains Opium and Ipecacuanha, of each, gr. 1/2.	25	100
E		
" Easton Syrup (Iron Phosphate with Quinine and Strych-	25	100
nine), dr. 1/2 1 to 2  ,, Easton Syrup (Iron Phosphate	25	100
with Quinine and Strych- nine), dr. I I	25	100
,, Effervescent Products  See Caffeine Citrate, Carlsbad Salt, Cubeb and Belladonna, Kissingen Salt, Lithium Citrate, Lithium Citrate and Sodium Sulphate, Magnesium Citrate, Magnesium Sulphate, Piperazine, Quinine Bisul- phate and Potassium Citrate, Seltzer Salt, Sodium Phos- phate, Sodium Salicylate, Sodium Sulphate, Sodium Sulphate Compound, Three Bromides, Vichy Salts.		
" Elaterin, gr. 1/40 1 to 4	25	_

of Tabloili - - -

'Tabloid' Brand Products-continued			ed in
'TABLOID' BRAND-	DOSE	bots, of	bots. of
(Trade Mark)  R' Epinine' gr. 1/1000 Heroin Hydrochloridi gr. 1/100 Pulv. Ipecacuanhæ gr. 1/50 Acidi Benzoici gr. 1/40 Ol. Gaultheriæ min. 1/30 Controls local congestion of larynx and pharynx. Made with a demulcent base and dissolves slowly, allowing prolonged application.	I	25	100
,, Ergotin (Ergot Extract, B.P.),			
gr. I	I to 4 or more	_	100
,, ,, ,, ,, gr. 2	I to 4	-	100
,, ,, ,, gr. 3	I to 3	_	100
,, Ergotin and Strychnine  R Ergotini (Ext. Ergotæ, P.B.) gr. 3 Strychninæ Sulphatis gr. 1/30	I to 2	_	100
,, Erythrol Tetranitrate (Tetranitrin), gr. 1/4, tubes of 25	I to 4	_	_
,, Erythrol Tetranitrate (Tetranitrin), gr. 1/2	I to 2	25	_
,, Erythrol Tetranitrate (Tetra- nitrin), gr. 1	I	12	_
,, Euonymin (Euonymus Dry			
Extract, B.P.), gr. 1/8, Euonymin (Euonymus Dry	I to 4 or more	50	-
	1 to 4	50	-
,, Euquinine, gr. 5	I to 2	25	100
,, Exalgine, gr. 2	I to 2	_	100
F			
,, Fellis Bovini Purificati (see Ox Bile, page 252)			
,, Fellis Porcini Purificati (see Pig Bile, page 254)			

Re Tabloid -

'Tabloid' Brand Products-	ontinued	Issu	ed in
'TABLOID' BRAND-	DOSE	oval bots, of	bots, of
		0013. 01	100
Each represents the amount of Ferric Chloride contained in min. to of Tinct. Ferri Perchloridi, P.B., with a small quantity of Ammonium Chloride as a vehicle.			
R Tinct. Ferri Perchlor. min. 10 Acidi Arseniosi gr. 1/30	ı	-	100
., Ferri Redacti (see Reduced Iron, page 257)			
,, Ferri Sulphatis (Exsicc.) (see Iron Sulphate, dried, page 247)			
,, Ferruginous (see Blaud Pill and combinations, page 235)			
,, Ferrum (see Iron, pages 247, 248)			
G			
,, Galbanum Compound (Asa- fetida Compound), B. P. Pill,			
gr. 4	I to 2		100
., Gelsemium Tincture, min. 5	I to 3	48	100
,, Gentian and Soda Compound (Mist. Gentianæ Alkalina)  R Sodii Bicarbonatis gr. 3  Ammonii Carb.  = Sp. Ammon. Arom. min. 3 Inf. Gentianæ Co. fl. dr. 2-1/2	I to 4 or more	_	100
,, 'Gingament' (Trade Mark), (Neutralising Compound)	I or more	25	100
R Sodii Bicarbonatis gr. 5 Ammonii Bicarbonatis gr. 1/12 Gingerini, Saccharini, Ol. Menthæ Piperitæ, ää q.s.			
,, Ginger Essence (B.P. '85),			
min. 5	I to 4	48	100
,, ,, ,, min. 10	I to 2	-	100

Write the Brand in full, thus: A Tabloil' -

'T:	abloid' Bran	d Pro	ducts-	continued	Issued in	
T	ABLOID' B	RAND-		DOSE	oval bots, of	bots, of
	Glycerophosph	atesCon	mound.			
.,	4			I to 8	25	100
	Each present Calcium, S Magnesium phosphates, Glyceropho Pepsin, D contained i of Syrup	ts the are odium, P and Iron with S osphate, p iastase a n 1/2 flui	mount of lotassium, Glycero- trychnine gr. 1/800, nd Kola, d drachm		~5	100
	phates.	uilina a	. 20			
"	Green Dye, A					
	C D		es of 12			-
3.3	Gregory Pov					
	Compound I Each cont gr. 1-1/9; gr. 3-1/3; a	ains : Heavy	Rhubarb, Magnesia,	I to 4 or more	25	100
,,	Grey Powder	(Hydra	rg. cum			
		Cretâ),	gr. 1/4	I repeated	100	_
,,	,, ,,	,,	gr. 1/3	I repeated	100	-
,,	,, ,,	3.5	gr. 1/2	1 repeated	100	_
,,	,, ,,	,,	gr. I	I to 5	100	
,,	,, ,,	1.1	gr. 2	I to 3	_	100
,,	,, ,,	. ,,	gr. 3	I to 2	_	100
,,,	,, ,,	,,	gr. 5	I	-	100
,,	Grey Powde	r and	Dover			
			1/2	I to 5 or more	_	100
	Each contain Opium an each, gr. 1	s: Mercuid Ipecad	ry, gr. 1/6;			
,,	Grey Powde	r and	Dover			
	Powder, of	each, gr.	I	I to 5		IOC
	Each contain Opium ar each, gr. 1	id Ipecac				
,,	Grey Powder	and Opi	um	I to 5	-	100
	R Hydrarg, cu Pulveris Opi	i	gr. 1/6			
,,	Grey Powder	r, gr. I	/2, and	1 12		
	Sodium Bica			I repeated	-	100
,,	Grey Powde	er, gr.	I, and			
	Sodium Bic	arbonate	e, gr. 5	I to 5	25	100

Write the Brand in full, thus: R Dabloid -

'Tabloid' Brand Products-	DOSE		bots, of
'TABLOID' BRAND-	DOSE	The second second	
		bots, of	
,, Grey Powder, Opium and			100
Quinine  R Hydrarg. cum Cretâ gr. 1-1/2 Extracti Opii gr. 1/6 Quininæ Sulphatis gr. 1-1/2	1 to 3		100
., Guaiacol Camphorate, gr. 5	1 to 2		
	increased	25	100
,, Guaiacol Carbonate, gr. 5	1 to 2	25	100
,, Guaiacum Resin, gr. 5	1 to 3	25	100
Guaiacum and Sulphur	I to 4	25	100
R Guaiaci Resinæ gr. 3 Sulphuris Præcip gr. 3			
,, Guaiacum and Quinine Com-			
pound gr. 2  R Guaiaci Resinæ gr. 2  Sulphuris gr. 2  Quininæ Salicylatis gr. 1/2	I to 4		100
Н			
,, Hæmoglobin, gr. 5	I or more	_	100
"Heroin Hydrochloride, gr. 1/25	I to 4	25	100
,, ,, gr. I/IO	I	_	100
., Hydrarg. et Colocynth et Hyoscy. (see Blue Pill, Colo- cynth and Hyoscyamus, page 235)			
,, Hydrarg. c. Cretâ (see Grey Powder)			
Hydrarg. Iodid. Flavi, gr. 1/8	I to 4	25	100
., Hydrarg. Iodid. Rubri, gr. 1/20	I	50	_
,, ,, ,, ,, gr. 1/16	I	50	_
	I to 4 or more	50	_
	I to 4 or more	100	
,, ,, ,, gr. 1/16	I	100	
,, Hydrarg. Perchlor., gr. 1/32, et Potass. Iodid., gr. 2-1/2	I to 2	_	100

Vialloid' - - -

'TABLOID' BRAND—,, Hydrarg. Perchlor., gr. 1/16,	DOSE	oval	1
,, Hydrarg. Perchlor., gr. 1/16,		bots, of	bots, of
et Potass. Iodid., gr. 5	1		100
	I to 4	25	100
gr. 1/4	repeated		
,, Hydrastine Compound	I to 3	25	100
R Hydrastinæ	repeated		
Hydrochloridi gr. 1/4 Ext. Ergotæ			
(Ergotini), P.B. gr. 1/2 Cannabinæ Tannatis gr. 1/2			
,, Hydrastine Compound and			
Cotarnine Hydrochloride	1 to 3	25	100
R Hydrastinæ	repeated	-3	100
Hydrochloridi gr. 1/4 Ext. Ergotæ			
(Ergotini), P.B. gr. 1/2			
Cannabinæ Tannatis gr. 1/2 Cotarninæ			
Hydrochloridi gr. 1/4			
,, Hyoscine Hydrobromide,			
0.0003 gm. [gr. 1/216]	I to 2		100
,, Hyoscyamus and Camphor			
Compound	I	_	100
R Tinct. Camphoræ Comp. min. 10			
Ext. Hyoscyami Viridis gr. 1			
Pulv. Ipecacuanhæ gr. 1/10			
,, Hyoscyamus Tincture, min. 10	I to 4 or more	36	100
,, Hypodermic Products			
(see pages 201-206)			
,, Hypophosphites Compound,		25	100
gr. 1-1/2	I to 2	25	100
Each contains: Calcium, Potas- sium, Sodium, Manganese, Iron			
and Quinine Hypophosphites, with gr. 1/128 of Strychnine			
Hypophosphite: equivalent to			
fluid drachm 1/2 of standard Compound Syrup of Hypo-			
phosphites.			
"Hypophosphites Compound,			
gr. 3	1	25	100
Containing gr. 1/64 of Strychnine Hypophosphite: equivalent to fluid drachm 1 of standard Compound Syrup.			

Write the Brand in full, thus: R Inbloid -

'Tabloid' Brand Products-co	ontinued	Issue	d in
			bots, of
'TABLOID' BRAND-	DOSE	bots, of	
,, Hypophosphites Compound			
and Creosote	I	_	100
Each contains: Creosote, min. 1, and gr. 3 of the combined Hypophosphites of Calcium, Sodium, Potassium, Manganese, Iron and Quinine, with gr. 1/64 of Strychnine Hypophosphite: equivalent to fluid drachm 1 of standard Compound Syrup of Hypophosphites.			
1			
,, Ichthyol, gr. 2-1/2	1 to 4	25	001
"Ipecacuanha Powder, gr. 1/10	I frequently	100	_
,, ,, ,, gr. 5 ,, Ipecacuanha deprived of its	1 every hour	-	100
Emetic Principles, gr. 5	I to 4 or more	_	100
Antimony, of each, gr. 1/100	I frequently	_	100
", Ipecacuanha Wine, min. 5	I to 3 (expec- torant)	50	100
,, Ipecacuanha with Opium (see Dover Powder, page 241)			
" Ipecacuanha with Squill (B. P.	1 to 2		100
Pill), gr. 4  Each contains approximately: Ipecacuanha and Opium, of each, gr. 1/5, Powdered Squill and Powdered Ammoniacum, of each, gr. 2/3.	1 to 2		
,, Iridin Compound gr. 2  R. Iridini gr. 2  Ext. Hyoscyami Vir. gr. 1/2  Pil. Rhei Comp gr. 1-1/2	I to 2	25	100
,, Iron Carbonate, Saccharated,			
gr. 5	1 to 6	-	100
., Iron Glycerophosphate, gr. 3	I to 2	25	100
., Iron and Quinine Citrate, B.P., gr. 3 ,, Iron, Reduced (see Reduced	1 to 3	25	100
Iron)			100
" Iron Sulphate, Dried, gr. 3	I		100

N'Sabloid' - - -

'Tabloid' Prost Dest			
'Tabloid' Brand Products-co	ontinued	Issue	
'TABLOID' BRAND-	DOSE	bots, of	bots, of
,, Iron Valerianate, gr. 1	I or more		100
,, Iron and Strychnine Phos-			
phates	I	25	100
R Ferri Phosphatis Sol. gr. 1 Strychninæ Phosphatis gr. 1/32			
,, Iron, Arsenic and Digitalin	1 to 3	25	100
R Ferri Phosphatis Sol. gr. 3 Acidi Arseniosi gr. 1/100 Digitalini (Amorph.) gr. 1/100			
,, Iron and Arsenic Compound	I to 3		100
R Ferri Hypophosphitis gr. 2 Quininæ Sulphatis gr. 1 Acidi Arseniosi gr. 1/50 Strychninæ Sulphatis gr. 1/50 Tonic, stimulant, hæmatinic and alterative.			
,, Iron Citrate Compound	I to 3	25	100
R Ferri et Ammon. Cit. gr. 3 Quininæ Sulphatis gr. 1 Acidi Arseniosi gr. 1/60			
,, Iron Phosphate with Quinine			
and Strychnine (see Easton			
Syrup, page 241)			
,, Iron Pill (see Blaud, page 235)			
J			
,, Jalap, gr. 5	I to 4		100
,, Juniper Oil, min. 3 (Capsule),			
boxes of 50	I	_	-
K			
,, Kino Compound Powder, B.P.,			
gr. 5	I to 4		100
Each contains: Kino, gr. 3-3/4; Opium, gr. 1/4; and Cinna- mon, gr. 1.			
,, Kissingen Salt, Effervescent,	I or more		
Artificial, tubes of 25	as required	_	-
L			
,, Laudanum (see Opium Tinc-			
ture, B.P., page 252)			

Write the Brand in full, thus:

| Jabloid \_ \_ \_ \_

'Tabloid' Brand Products-co	ontinued	Issue	ed in
'TABLOID' BRAND-	DOSE	oval bots, of	bots, of
,, Laxative Vegetable	1 to 3	25	100
R Ext. Colocynth. Co. gr. 1  Ext. Jalapæ gr. 1/2  Podophylli Resinæ gr. 1/4  Leptandrini gr. 1/2  Ext. Hyoscyami Vir. gr. 1/4  Ext. Taraxaci gr. 1/4  Ol. Menthæ Pip q.s.  A purely vegetable laxative and			
drugs of exceptional purity.			
" Lead with Opium (B.P. Pill),			100
Each contains approximately:  Lead Acetate, gr. 3; and  Opium, gr. 1/2.	1		100
,, Liquorice Compound Powder,			
gr. 30	1 to 4	25	100
Each represents: Senna, gr. 5; Liquorice Root, gr. 5; and Sublimed Sulphur, gr. 2-1/2; etc.			
	I to 3		100
., Lithium Citrate, gr. 5, Effer-			
	I to 2		100
" Lithium Citrate, Effervescent,			
	I to 2	_	_
" Lithium Citrate and Sodium			
Sulphate, Effervescent, tubes			
	1102		
of 25 gr. 5 Sodii Sulphatis gr. 30	1 10 2		
,, Lithium Benzoate Compound	I to 4 or more	-	100
R Lithii Benzoatis gr. 3 Sulphuris Præcip gr. 2 Quininæ Salicylatis gr. 1/3			
Livingstone Rouser (see			
Quinine and Rhubarb Com-			
pound, page 256)			
., 'Lodal' (Trade Mark) (6:7-			
Dimethoxy-2-methyl-3:4-			
dihydro <i>iso</i> quinolinium			
Chloride), gr. I	I	25	100
Chilorate, gir i		-5	7.7.7

Write the Brand in full, thus: & Dabloid -

'Ta	abloid' Brand Products-	ontinued	Issu	ed in
' T	ABLOID' BRAND-	DOSE	oval bots, of	bots, of
	M			
"	Magenta Dye, Aniline, gr. 30, tubes of 12		_	_
,,	Magnesium Citrate (True), Effervescent, gr. 60, tubes of 25	I to 2		
,,	Magnesium Sulphate, Effervescent, B.P., gr. 60, tubes	1103		
	Each represents gr. 30 of Magnesium Sulphate.	I to 4	-	-
,,	Magnesium Sulphite, gr. 5	1 frequently	_	100
,,	Magnesium Carbonate Com-			
	pound  R Magnesii Carbonatis gr. 3 Potass. Bicarbonatis gr. 3 Sodii Bicarbonatis gr. 3	I to 4	25	100
,,	Magnesium Sulphate Com- pound, Effervescent, tubes			
	of 25 gr. 15  R Magnesii Sulphatis gr. 15 Sodii Sulphatis gr. 15 Magnesii Carbonatis gr. 5 Liq. Zingiberis min. 3-1/2	I to 4	-	_
,,	'Mamos' (Trade Mark) (for- merly known as 'Tabloid'			
,,	Mammary Gland), gr. 5 Manganese Citrate (soluble),	I increased	_	100
	gr. 3 Manganese Citrate (soluble),	I to 3	25	_
	gr. 5 Manganese and Iron Citrate	I to 2	25	_
	(soluble), gr. 3 Manganese and Iron Citrate	I to 3	25	100
,,	(soluble), gr. 5	I to 2	25	100
,,	Manganese Peroxide, gr. 2		25	100

A'Sabloid' - - -

'Tabloid' Brand Products-	continued	Issu	ed in
'TABLOID' BRAND-		oval bots, of	bots, of
" Menthol, gr. 1/4, bottles of 40	I repeated	_	100
"Menthol Compound gr. 1/2	I to 4	_	100
Sodii Bicarbonatis gr. 3 Saccharini gr. 1/6 Prepared with Menthol of ex- ceptional quality.			
" Mercuric Potassium Iodide,			
(formerly known as Iodic-			
Hydrarg. ), gr. 1/6	I	_	100
" Mercury preparations,			
'Tabloid' Brand (see under			
Calomel, Grey Powder and			
Hydrargyrum)	I to 2		100
" Methylene Blue, gr. 2	1 10 2		100
" Milk Sugar, gr. 3			100
,, Mineral Water Salts, Effer- vescent, Artificial (see Carls-			
bad, Kissingen, Seltzer and Vichy)			
,, Mistura Alba	I to 8	_	100
R Magnesii Carb. Pond. gr. 2-1/2 Magnesii Sulphatis gr. 15 Ol. Menthæ Pip. min. 1/32 Conveniently presents a most efficient saline combination.			
,, Morphine Hydrochloride,			
	I to 2	100	
,, Morphine Sulphate, gr. 1/20	I to 4 or more	50	_
,, ,, gr. 1/8	I to 4	50	_
,, ,, gr. 1/4	I to 2	50	_
,, Morphine and Emetine,			
bottles of 50	I	_	_
R Morphinæ Sulphatis gr. 1/40 Emetinæ Hydrobrom. gr. 1/80			
,, Morphine, Strychnine and			
Belladonna	I as required	25	100
R Morphinæ Sulphatis gr. 1/12 Strychninæ Sulphatis gr. 1/60 Ext. Belladonnæ gr. 1/20			

Write the Brand in full, thus: R Jabloid -

Ta	bloid' Brand Products	-00	ontinued	Issue	d in
T	ABLOID' BRAND-		DOSE	oval bots, of	bots. o
,,	Mucin Compound gr. 5 Sodii Bicarbonatis gr. 5		2 or more	25	100
	N				
,,	Nitroglycerin (see Trinitrin	١,			
, ,	Nuclein, gr. 1		I or more	_	100
,,	Nux Vomica Compound  R Ext. Nucis Vomicæ, Aloini, Ferri Sulphatis, Pulv. Myrrhæ, Pulv. Saponis ää gr. 1/2 Stomachic and tonic aperie of special value in chro constipation.	nt,	ı to 3	25	100
,,	Nux Vomica Tincture, min.	I	I frequently	100	_
, ,	,, ,, ,, min.	5	I to 3	48	100
,,	,, ,, ,, min. I	0	I	36	100
	O				
,,	Ophthalmic Products (see pages 210-211	()			
,,	Opium, gr. 1/2		I to 4	_	100
	,, gr. I			-	100
	Opium Tincture, B.P. (Lauc				
,,	anum), min. 2 Opium Tincture, B.P. (Laud		I to 5	48	100
	anum), min. 5		I to 3	48	10
	anum), min. 10		I	36	10
	Ovarian Substance (s 'Varium,' page 263)				
,,	Ox Bile (Purified), gr. 4		I to 4	-	10
	Р				
,,	Pancreatin (see 'Pepana	a,'			

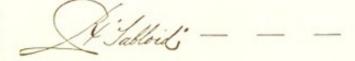
'Tabloid' Brand Products-	continued	Issue	ed in
'TABLOID' BRAND-	DOSE	oval bots, of	bots, of
,, Papain, gr. 2	1 to 4	25	100
,, Paregoric (see Camphor, page			
237)			
,, Pastilles (see pages 212, 213)			
" Pelletierine Tannate, gr. 2	I to 4	25	_
., 'Pepana' (Trade Mark)	I to 3	25	100
R Pepsini gr. 1 Pancreatini gr. 1 Calcii Lactophosphatis gr. 1 Scientifically prepared for the treatment of dyspeptic condi- tions affecting both stomach and intestine.			
,, Pepsin, Saccharated, gr. 5	1 to 4 or more		100
,, Pepsin and Strychnine		25	100
R Pepsini gr. 2 Strychninæ Sulphatis gr. 1/10	00		
,, Pepsin, Bismuth and Charcoal	I to 3	25	100
R Pepsini gr. 2  Bismuthi Carbonatis gr. 2  Carbonis Ligni gr. 2  Digestive, sedative and absorbent, of special service in flatulent dyspepsia.			
,, Pepsin, Bismuth and Strych-			
nine	I to 3	25	100
R Pepsini gr. 2 Bismuthi Carbonatis gr. 3 Strychninæ Sulphatis gr. 1/10	∞		
,, Phenacetin, gr. 5	I to 2	25	100
,, Phenacetin Compound	I to 3	25	100
R Phenacetini gr. 4 Caffeinæ gr. 1			
" Phenacetin and Quinine Com-			
Phenacetini gr. 3 Quininæ Hydrobromidi gr. 1/2 Caffeinæ gr. 2/3	I to 3	_	100
,, Phenazone (see Antipyrine,			
page 232)			
,, Phenol (see Carbolic Acid, page 238)			

of Tablonia - -

		Leene	ed in
'Tabloid' Brand Products-continued			bots, of
'TABLOID' BRAND-	DOSE	bots, of	
" Phenol and Menthol Com-			
pound (Capsule), boxes of 25  R Phenol gr. 1/4  Menthol gr. 1/2 Ol. Cajuputi min. 1	1 as required	-	-
,, Phosphates Compound (see Chemical Food, page 239)			
,, Photographic (see pages 214-217)			
,, Pig Bile (Purified), gr. 4	I to 4	_	100
,, Pilocarpine Nitrate, gr. 1/10	I to 5	25	_
	I to 2	25	-
,, Piperazine, gr. 5, bottles of 25	I to 2	_	-
,, Piperazine, gr. 5, Effervescent,			
tubes of 12	I to 2	-	_
,, Pituitary Gland, gr. 2	I to 3	-	100
,, Plummer Pill (see Calomel Compound, page 237)			
,, Podophyllin, gr. 1/4	I to 4	100	-
,, Podophyllin and Euonymin  R Podophylli Resinæ gr. 1/4 Ext. Euonymi Sicci gr. 1	I to 2		100
,, Podophyllin Compound  R Podophylli Resinæ gr. 1/6 Pil. Rhei Comp gr. 2-1/2 Ext. Hyoscyami Vir. gr. 1-1/4	I to 3	_	100
,, Potassium Bicarbonate, gr. 5	I to 6	40	100
" Potassium Bromide, gr. 5	1 to 6	_	100
,, ,, gr. 10	I to 3	_	100
,, Potassium Chlorate, gr. 5 In graven white-metal boxes, each containing 40 or 100	I as required	40	100
,, Potassium Chlorate and Borax In graven white-metal boxes, each containing 40 or 100	I as required	d 40	100
., Potassium Iodide, gr. 1	I frequently	-	100
,, ,, ,, gr. 3	I to 6	-	100
,, ,, ,, gr. 5	I to 4	-	100

Write the Brand in Re Dabloid' —

	Issu	ed in
'Tabloid' Brand Products-continued		bots, of
'TABLOID' BRAND- DOSE	bots, of	
,, Potassium Nitrate (Sal Pru-		
nella), gr. 5 1 to 4	_	100
,, Potassium Permanganate, gr. 1 1 to 3	_	100
,, ,, ,, gr. 2 I	_	100
,, Prostate Gland, gr. 2-1/2 1 to 2	_	100
Q		
,, Quinine, Ammoniated (see Ammoniated Quinine)		
,, Quinine Bihydrochloride (Acid		
Quinine Hydrochlor.), gr. 2,		
gr. 3, gr. 5, gr. 10, each as		
strength required	25	100
,, Quinine Bisulphate, gr. 1/2 1 or more	50	100
,, ,, ,, gr. 1 I or more	36	100
,, ,, gr. 2 I to 5	25	100
,, ,, gr. 3 I to 3	25	100
,, ,, ,, gr. 4 I to 2	25	100
,, ,, gr. 5 I to 2	25	100
,, ,, ,, gr. 10 1	25	100
Proved by the experience of medical officers to retain its therapeutic activity under the most adverse climatic conditions.		
" Quinine Hydrobromide, gr. 1,		
gr. 2, gr. 3, gr. 4, gr. 5, as	25	100
each strength required	25	100
,, Quinine Hydrochloride, gr. 1,		
gr. 2, gr. 3, gr. 4, gr. 5, as		100
each strength required	25	100
,, Quinine Salicylate (Physio- logically Pure), gr. 1 1 to 6	25	100
,, Quinine Salicylate (Physio-		
logically Pure), gr. 3 I to 2	25	100
,, Quinine Salicylate (Physio-		
logically Pure), gr. 5 I to 2	25	100



'Tabloid' Brand Products-continued		Issue	d in
'TABLOID' BRAND-	DOSE	oval bots, of	bots, of
gr. 3, gr. 4, gr. 5, each strength	as required		
" Quinine Valerianate, gr. 2	I to 2	_	100
" Quinine Bisulphate and Potassium Citrate, Effervescent, tubes of 25	I to a vo		
R Quininæ Bisulphatis gr. 1 Potassii Citratis gr. 15	peated as necessary	_	
,, Quinine and Camphor  R Quininæ Bisulphatis gr. 1 Camphoræ gr. 1/5	I every hour	25	100
R Quinine and Strychnine R Quininæ Bisulphatis gr. 1 Strychninæ Sulphatis gr. 1/60	I to 3	25	100
,, Quinine, Arsenic and Strych- nine & Quininæ Bisulphatis gr. 1	1	· —	100
Acidi Arseniosi gr. 1/20 Strychninæ gr. 1/30 ,, Quinine, Belladonna and			
Camphor  R. Quininæ Sulphatis gr. 1/4 Ext. Belladonnæ gr. 1/8 Camphoræ gr. 1/4	I to 4	25	100
R Quinine, Camphor and Aconite R Quininæ Bisulphatis gr. 1/4 Camphoræ gr. 1/4 Tinct. Aconiti min. 1	I every hour	25	100
R Cinchonæ Alkaloidorum gr. 1 Acetanilidi (Antifebrini), P.B. gr. 1-1/5 Camphoræ Mono-	I every hour	25	100
Pulv. Ipecacuanhæ gr. 1/8 Ext. Cascar. Sagrad. gr. 1/4			
pound (well known for many years as 'Tabloid' Livingstone Rouser)	I to 3	25	100
R. Pulv. Jalapæ gr. 1-1/2 Hydrarg. Subchlor. gr. 1 Pulv. Rhei gr. 1-1/2 Quininæ Bisulphatis gr. 1		-3	100

Write the Brand in full, thus:

| Cabloid \_ \_ \_ \_

'Tabloid' Brand Products-	continued	Issue	
'TABLOID' BRAND-	DOSE	bots, of	bots. of
R			
,, Red Gum	1 occasionally	25	100
" Reduced Iron, gr. 2		_	100
" Reduced Iron Compound		25	100
R Ferri Redacti gr. 2 Ext. Hyoscyami gr. 1 Ext. Nucis Vomicæ gr. 1/2 Olei Carui min. 1/4			
,, Reduced Iron and Rhubarb			100
Compound gr. 2  Ext. Hyoscyami gr. 1  Ext. Nucis Vomicæ gr. 1/2  Pil. Rhei Comp gr. 1  Olei Carui min. 1/4  This preparation and 'Tabloid'  Reduced Iron Compound are of special value in the treatment of neurasthenia, chlorosis and its sequelæ.	I to 2	25	100
,, Residuum Rubrum, gr. 5	I to 4	-	100
,, Resina Podophylli (see Podo- phyllin, page 254)			
,, Resorcin, gr. 3	I to 2	_	100
,, Rhubarb, gr. 3	I to 4 or more	25	100
" Rhubarb Extract, gr. 2	I to 4	25	100
R Pulv. Rhei gr. 3 Sodii Bicarbonatis gr. 1-1/2 Pulv. Zingiberis gr. 1/2	1 to 5	25	100
,, Rhubarb Compound Pill, B.P.,			
gr. 4	I to 2	25	100
,, Rhubarb Compound Powder			
(see Gregory Powder, page 244)			
,, Rhubarb and Gentian Com- pound (Stomachic Com-			
pound)  R Inf. Gentianæ Co. fl. dr. 2 Inf. Rhei fl. dr. 1 Sodii Bicarbonatis gr. 5 Ol. Menthæ Pip min. 1/6	I to 4	_	100

Write the Brand in Realist Dubloid - - -

Stabloid: \_ \_ \_

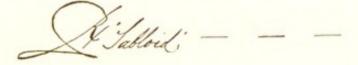
'Tabloid' Brand Products-	continued	Issu	ed in
'TABLOID' BRAND-	DOSE	oval bots, of	bots, of
R Soda-Mint (Neutralising) R Sodii Bicarbonatis gr. 4 Ammon. Bicarb gr. 1/12 Ol. Menthæ Pip q.s. A most effective compound of antacid, aromatic and stimu-	I to 4 or more	30	100
lating ingredients of exceptional purity.	6		100
., Sodium Bicarbonate, gr. 5		40	100
,, ,, gr. 10		40	100
Sodium Bromide, gr. 5	1 to 6		100
., ,, ,, gr. 10	I to 3		100
R Sodii Bromidi gr. 2 Strontii Bromidi gr. 2 Ammonii Bromidi gr. 1 Sodii Arsenatis gr. 1/60			100
Sodium Citrate, gr. 2 [	for milk	_	100
,, Sodium Phosphate, Effervescent, B.P., gr. 60, tubes	modification J	25	100
of 25  Each represents gr. 30 of Sodium Phosphate.  Sodium Salicylate (Natural)	I or more	_	_
gr. 3	I to 6 or more	25	_
	I to 6	25	-
logically Pure), gr. 3 ,, Sodium Salicylate (Physio-	I to 6 or more	25	100
,, Sodium Salicylate (Physiologically Pure), gr. 5, Effer-	I to 6	25	100
vescent, tubes of 25 ,, Sodium Salicylate and Potas- sium Bicarbonate, of each,	I or more		
gr. 5	I to 6	25	100
., Sodium Sulphocarbolate, gr. 5 ., Sodium Sulphate, Effervescent,	1 to 3		100
B.P., gr. 60, tubes of 25 Each represents gr. 30 of Sodium Sulphate.	I or more	-	-

Write the Brand in Ry Tabloid - - -

'Та	abloid' Brand Products-	continued	Issue	ed in
	ABLOID' BRAND-	DOSE		bots. of
	Sodium Sulphate Compound,		nots, or	
	Effervescent, tubes of 20  R Sodii Sulphatis Exsice. gr. 30 Potassii Tartratis Acidi gr. 10	I to 2		
	Potassii Bicarbonatis gr. 2-1/2 Ess. Zingiberis q.s. Salis Effervescentis q.s.			
,,	Sparteine Sulphate, gr. 1, bottles of 25	I	_	_
,,	Spinal Cord Substance,			
		I or more	-	100
,,	Spleen Substance, gr. 5	I or more	_	100
,,	Strontium Bromide, gr. 5	1 to 6		100
21	Strophanthus Tincture, B.P.,	I repeated		
	min. 5 Unique in preserving the full therapeutic activity of the true drug.	as necessary	50	100
,,	Strychnine Sulphate, gr. 1/60	I to 4	50	_
,,	,, ,, gr. 1/30		50	_
,,	,, gr. 1/20	I	50	10000
,,	,, gr. 1/15	I	50	_
,,	Sugar of Milk (see Milk Sugar, page 251)			
,,	Sulphonal, gr. 5	1 to 6	25	100
,,	Sulphur Compound  R Sulphuris Præcipitati gr. 5 Potassii Tartratis Acidi gr. 1	I to 4 or more	25	100
,,	Supra-renal Gland, gr. 5	I to 3	_	100
	Т			
,,	Tannin, gr. 2-1/2	I to 2	_	100
,,	Tar, gr. 1	I frequently	50	100
,,	T 10 11	I to 4	25	100

Write the Brand in full, thus: Re Dabloid - - -

Tabloid' Brand Products-continued	Issued in oval   bots, of	
TABLOID' BRAND- DOSE	bots, of	DOIS. OI
,, Tea (see page 264)		
,, Terebene, min. 5 (Capsule), boxes of 50 1 to 3	_	
Test Products (see pages 228-230)		
,, Tetranitrin (see Erythrol Tetranitrate, page 242)		
,, Thirst Quencher I to 2 or more  Containing tartaric acid and sodium bicarbonate, flavoured with lemon and 'Saxin.'	25	100
,, Three Bromides, Effervescent,		
tubes of 25 I to 2  R Potassii Bromidi o.4 gm. [gr. 6] Sodii Bromidi o.4 gm. [gr. 6] Ammonii Bromidi o.2 gm. [gr. 3] Salis Effervesc. q.s.	_	
,, Three Syrups, I fl. dr I to 2	25	100
R Syr. Ferri Phosphatis cum Quininâ et Strychninâ (Easton) min. 15 Syr. Hypophosphitum Comp. min. 15 Syr. Phosphatum Comp. (Parrish) min. 30 Each contains Strychnine, gr. 1/85		
,, Three Valerianates I	_	100
R Quininæ Valerianatis gr. 1 Ferri Valerianatis gr. 1 Zinci Valerianatis gr. 1 Retains the full therapeutic activity of the Valerianates, whilst concealing their unpleasant odour.		
,, Thymol, gr. I I to 2	25	_
,, ,, gr. 2 I	25	
,, ,, gr. 5 Used in special case	s —	100
., Thymus Gland, gr. 5 I to 5	_	100
,, Thyroid Colloid, gr. 1/2 I increased	-	100



' T	Tabloid' Brand Products-continued				Issued in					
	ABLOI						oval bots.			
						DOSE	bots, of			
7	Thyroid									
				gr. 1/10				100		
* *	2.2			gr. 1/4				001		
2.3	1.5			gr. 1/2				100		
, ,	,,			gr. I				100		
	3.3			gr. 1-1/2				100		
2.3	,,			gr. 2-1/2		increased		100		
2.3				gr. 5				100		
	prepa that subst than	the dance co	esico ntair cent	ful Thyroid adardised so cated gland as not less but of lodine, ation.						
,,	Tinctures									
	phor Indic Cinch lis, G cyam	Compo a, Caps iona Co elsemiun us, Nux	icum mpou n, Gi Von	donna, Cam, Cannabis, Cinchona, and, Digita- inger, Hyos- ica, Opium, Warburg)						
.,	Tonic Co	mpound	1		1	to 3	25	100		
	R Ferri Pyro	phospha e Bisulpl inæ	tis natis	gr. 2		3	-5			
, ,	Trinitrin	(Nitrog	lyce	rin),						
				gr. I/200	I	or more	25	100		
,,	,,			gr. 1/100	I	to 2	25	100		
		,,		gr. 1/50			25	100		
,,	therap	f the poeutic ag	many ents ich 1	important in the intro- B. W. & Co.			23	100		
11	Trinitrin (	Compo	ind		I	to 2	25	100		
	R Trinitri Capsicii Mentho	ni		gr. 1/100 gr. 1/200 gr. 1/100			-5			
,,	Trional, g	r. 5			I	to 6	25	100		
,,	Turpentin	e Oil, R	ecti	fied, min.						
0.5053				of 20	I	or more	-	_		

Write the Brand in full, thus: Jabloid \_\_

'Tabloid' Brand Products-c	Brand Products-continued		
'TABLOID' BRAND-	DOSE	oval bots, of	bots. of
U			
,, Urotropine, gr. 3 ,, gr. 5		25 25	100
V			
", 'Varium' (Trade Mark)  (formerly known as 'Tabloid'  Ovarian Substance), gr. 5  ", Vegetable Laxative (see  Laxative Vegetable)	I to 2 or more	-	100
"Veronal, gr. 5	I to 2	25	
" Viburnum Prunifolium Extract,	1 to 5		100
gr. 2	1 60 5		
Artificial, tubes of 25	or more as desired		_
"Vichy Salt, Effervescent, Arti- ficial, and Lithium Citrate,			
Each contains Lithium Citrate, gr. 1, in addition to the essential constituents of Vichy Water.	I or more as desired	_	_
,, Vinum Ipecacuanhæ (see Ipecacuanha Wine, page 247), Violet Dye, Aniline, gr. 30,			
tubes of 12			_
W			
,, Warburg Tincture, min. 30	2 to 8	_	100
,, ,, ,, dr. 2		25	100
Z			
,, Zinc Oxide, gr. 2	I to 5	_	100
Zinc Sulphate (see 'Soloid' Brand Products, page 228)			
., Zinc Valerianate, gr. 2	I	_	100

A Tabloil' - - -

'Tabloid' Brand Products-	Issued in			
'TABLOID' BRAND-	oval bots, of	bots, of		
R. Zinci Valerianate Compound R. Zinci Valerianatis gr. 1 Pulv. Rhei gr. 1 Ext. Belladonnæ gr. 1/8 Pulv. Zingiberis gr. 1	I		_	100
,, Zinc Valerianate and Asafetida				
Compound gr. 1  R Zinci Valerianatis gr. 1  Asafetidæ gr. 1  Myrrhæ gr. 1/2	I		-	100
,, Zinc Valerianate with Iron and				
Arsenic gr. 2  E Zinci Valerianatis gr. 2  Ferri Redacti gr. 1  Acidi Arseniosi gr. 1/60  Ext. Gentianæ gr. 1	I		-	100
,, Zingib. Fort. Tinct., P.B., 1885 (see Ginger, page 243)				

Also a wide range of other products issued under the 'Tabloid' Brand.

'Tabloid' Brand Tea provides the most convenient, portable and effective means of quickly preparing tea of uniform strength. It is the most suitable tea for travellers, sportsmen, cyclists, pleasure parties, etc., and is an admirable adjunct to the home. A tin of 'Tabloid' Tea and a bottle of 'Tabloid' 'Saxin' for sweetening the infusion may be conveniently carried in the waistcoatpocket.

In enamelled tins containing 100 and 200.

'Tabloid' Brand Tea, Special Blend, an unique blend of the very choicest varieties.

In enamelled tins containing 100 and 200.

Terebene, Pure (B. W. & Co.)—

In bottles of 1, 2 and 16 ounces ... 5 to 15 min.

Test Cases, 'Soloid' Brand (see Analysis Cases, pages 175-177)

Tinctures, B.P. (Physiologically standardised),
'Wellcome' Brand (see page 299)



Tow, Carbolised, Pleated Compressed, 'Tabloid', Brand (see Dressings, page 193)

Towels, Sanitary, Pleated Compressed, 'Tabloid' Brand (see page 218)

# TUBERCULINS, TRADE 'WELLCOME' BRAND

The word 'WELLCOME' is a brand which designates fine products issued by Burroughs Wellcome & Co. This brand should always be specified when ordering.

'WELLCOME' Brand TUBERCULINS, prepared in the Wellcome Physiological Research Laboratories, Brockwell Hall, London (Eng.), are carefully tested for sterility before issue.

New Tuberculin (W) is prepared by a special process, designed to render absorption of the bacillary substance more easy by removal of lipoid constituents.

Burroughs Wellcome & Co. act as distributing agents for the Wellcome Physiological Research Laboratories.

Issued in rubber-corked bottles, for dilution by the user

## Endotoxic-

# WELLCOME' BRAND— "New Tuberculin (W), Human I c.c. containing 2 mgm. tubercle bacillary substance 5 c.c. ,, Io mgm. ,, ,, "New Tuberculin (W), Bovine I c.c. containing 2 mgm. tubercle bacillary substance 5 c.c. ,, Io mgm. ,, ,, "Tubercle Vaccine, Human—Bacillary Emulsion (B.E.) I c.c. containing 5 mgm. tubercle bacillary substance 5 c.c. ,, 25 mgm. ,, ,, "Tubercle Vaccine, Bovine—Bacillary Emulsion (P.B.E.) I c.c. containing 5 mgm. tubercle bacillary substance

5 c.c. ,, 25 mgm. ,, ,,

## Tuberculins, 'Wellcome' Brand-continued

#### Exotoxic-

#### 'WELLCOME' BRAND-

#### " Old Tuberculin, Human (T.)

1 c.c. of undiluted Old Tuberculin, Human 5 c.c.

# " Old Tuberculin, Bovine (P.T.)

1 c.c. of undiluted Old Tuberculin, Bovine

# " Tuberculin Bouillon Filtrate, Human (T.O.A.)

I c.c. of undiluted T.O.A.

# " Tuberculin Bouillon Filtrate, Bovine (P.T.O.)

I c.c. of undiluted P.T.O. 5 c.c.

#### For Diagnosis only-

#### Tuberculin (Human), B. W. & Co.

For Calmette's Ophthalmic Reaction Hermetically-sealed tubes containing a sterile solution of a strength of 10 mgm. of dried purified tuberculin per c.c. In boxes of 6 tubes.

## Tuberculin (Bovine), B. W. & Co .-

For Calmette's Ophthalmic Reaction
Hermetically-sealed tubes containing a sterile solution
of a strength of 10 mgm. of dried purified tuberculin
per c.c. In boxes of 6 tubes.

## Tuberculin (Human), B. W. & Co.-

For von Pirquet's Cutaneous Reaction
In boxes of 6 hermetically-sealed tubes.

## Tuberculin (Bovine), B. W. & Co .-

For von Pirquet's Cutaneous Reaction
In boxes of 6 hermetically-sealed tubes.

## For Veterinary Diagnosis-

#### 'WELLCOME' BRAND-

,, Tuberculin— For Veterinary Diagnosis
In phials of 4 c.c. and in corked bottles of 30 c.c.

## Tuberculins, 'Wellcome' Brand-continued

### For Laboratory Tests-

#### 'WELLCOME' BRAND-

" Tubercle Bacilli (Human), killed-

For Opsonic Estimations

Issued as a thick emulsion, in tubes.

" Tubercle Bacilli (Bovine), killed-

For Opsonic Estimations

Issued as a thick emulsion, in tubes.

"Tubercle Bacilli (Human), killed and finely ground—
For Agglutination Tests
Issued as a dry powder, in tubes.

"Tubercle Bacilli (Bovine), killed and finely ground—
For Agglutination Tests
Issued as a dry powder, in tubes.

# VACCINES, TRADE 'WELLCOME' BRAND

The word 'WELLCOME' is a brand which designates fine products issued by Burroughs Wellcome & Co.

'Wellcome' Brand Vaccines are prepared in the Wellcome Physiological Research Laboratories, Brockwell Hall, London (Eng.). Every stage of their preparation is carried out under the immediate supervision of a skilled staff of highly-qualified experts.

Burroughs Wellcome & Co. act as distributing agents for

the Wellcome Physiological Research Laboratories.

Vaccines should be kept in a cool dark place, and protected from extremes of temperature.

Issued in hermetically-sealed phials

#### 'WELLCOME' BRAND-

## " Acne Bacillus Vaccine

I c.c. containing 10 million organisms

I c.c. ,, 50 ,, ,,

## " Acne Vaccine, Mixed, No. 1

I c.c. containing 10 million acne bacilli and 250 million staphylococci, mixed

## " Acne Vaccine, Mixed, No. 2

I c.c. containing 125 million acne bacilli and 125 million staphylococci, mixed

## " Acne Vaccine, Mixed, No. 3

I c.c. containing 500 million acne bacilli and 500 million staphylococci, mixed

Vaccines, 'Wellcome' Brand-continued
'WELLCOME' BRAND-
" B. Coli Vaccine
1 c.c. containing 10 million organisms
I c.c. ,, 50 ,, ,,
" Cholera Vaccine
1 c.c. containing 1000 million organisms
I C.C. ,, 2000 ,, ,,
,, Coryza Vaccine, No. 1
1 c.c. containing 100 million B. septus
" Coryza Vaccine, No. 2
I c.c. containing 100 million M. catarrhalis
,, Coryza Vaccine, No. 3
I c.c. containing 100 million B. septus and 100 million
M. catarrhalis
Gamagagas Vaggina
" Gonococcus Vaccine
I c.c. containing 5 million organisms I c.c. ,, 20 ,, ,,
I c.c. ,, 200 ,, ,,
I c.c. ,, 1000 ,, ,,
,, Influenza Vaccine
I c.c. containing 10 million B. influenzæ
I c.c. ,, 50 ,, ,, ,,
,, Mediterranean Fever Vaccine I c.c. containing 100 million organisms
" Pneumococcus Vaccine
I c.c. containing IO million organisms
I c.c. ,, 50 ,, ,,
" Staphylococcus Vaccine, Aureus
I c.c. containing 200 million organisms
I c.c. ,, 1000 ,, ,,
" Staphylococcus Vaccine, Mixed
I c.c. containing 200 million organisms
I c.c. ,, 1000 ,, ,,
,, Streptococcus Vaccine, Dental
I c.c. containing 10 million organisms

1 c.c. ,, 50 ,, ,,

## Vaccines, 'Wellcome' Brand-continued

#### 'WELLCOME' BRAND-

# " Streptococcus Vaccine, Polyvalent

1 c.c. containing 10 million organisms
1 c.c. ,, 50 ,, ,,

# " Streptococcus Vaccine, Rheumatic Fever

1 c.c. containing 10 million organisms
1 c.c. ,, 50 ,, ,,

## " Typhoid Vaccine

1 c.c. containing 500 million organisms

I c.c. ,, IOOO ,, ,,

" Mallein, see page 209

## "MARE 'VALOID' BRAND PRODUCTS

The word 'VALOID' is a brand which designates fine products issued by Burroughs Wellcome & Co. To ensure the supply of pure and reliable preparations, this brand should always be specified when ordering.

#### 'VALOID' BRAND-

,, Aromatic Cascara Sagrada, bottles containing 4 fl. oz. Dose taining 4 fl. oz.

"Ergot, bottles containing 4 fl. oz. ... 10 to 30 min.

The strength of each 'Valoid' preparation is indicated on the label

Various other products are also issued under this brand

# TRADE 'VALULE' BRAND PRODUCTS

The word 'VALULE' is a brand which designates fine products issued by Burroughs Wellcome & Co. To ensure the supply of pure and reliable preparations, this brand should always be specified when ordering.

### 'VALULE' BRAND-

DOSE

,, Bone Medulla, flexible capsules, each representing gr. 5, bottles of 100 ... I or more (See also 'Tabloid' Bone Medulla, page 236)

Various other products are also issued under this brand

# 'VANA' (Trade Mark) Brand Tonic Wine- DOSE

Presents calcium glycerophosphate and the alkaloids of cinchona bark in a pure, sound wine of excellent quality.

Bottles of 16 fl. oz.

Half a wineglassful

## WARE 'VAPOROLE' BRAND PRODUCTS

The word 'VAPOROLE' is a brand which designates fine products issued by Burroughs Wellcome & Co. To ensure the supply of pure and reliable preparations, this brand should always be specified when ordering.



Vaporole'

'VAPOROLE' products present medicaments for hypodermic injection, inhalation, etc. Medicaments intended for hypodermic injection are issued in hermetically-sealed containers of special design, whilst those intended for inhalation are contained in thin glass capsules surrounded with absorbent material and enclosed in silken netting.

## For Hypodermic Injection

Issued in hermetically-sealed containers

The 'Vaporole' container is unique in construction and convenience. It has an expanded base and will stand firmly on any flat surface. The container can be opened with ease and certainty by making a file mark on the neck with the file provided for the purpose, and snapping the neck at the file

mark. Except when otherwise stated, the contents of each 'Vaporole' hypodermic product are sufficient to enable I c.c. (approx. min. 16) to be injected. Each product is sterilised and ready for immediate hypodermic injection.

#### 'VAPOROLE' BRAND-

- ,, Apomorphine Hydrochloride, 0.005 gm. (gr. 1/13), boxes of 10.
- ,, Atropine Sulphate, 0.0005 gm. (gr. 1/130), boxes of 10.
- ,, Caffeine Sodio-benzoate, 0.25 gm. (gr. 3-3/4), boxes of 10.
- ,, Calomel, 0.05 gm. (gr. 3/4), in a Neutral Fatty Basis, with Creosote and Camphor, boxes of 10.
- ,, Camphor, 0-1 gm. (gr. 1-1/2), in Olive Oil, boxes of 10.
- ,, Cocaine Hydrochloride, 0.01 gm. (gr. 1/6) and 0.02 gm. (gr. 1/3), boxes of 10.
- ,, Digitalin (Crystalline), 0.0001 gm. (gr. 1/650), boxes of 10.
- ,, Emetine Hydrochloride, 0.02 gm. (gr. 1/3) and 0.03 gm. (gr. 1/2), boxes of 10.

# 'Vaporole' Brand Products-continued

### 'VAPOROLE' BRAND-

- " (Epicaine' ('Epinine' and Cocaine Hydrochloride), boxes of 10
  - R 'Epinine' ... ... 0-0003 gm. (gr. 1/216) Cocainæ Hydrochloridi 0-02 gm. (gr. 1/3) Aquam ... ad 1 c.c.

The above formula is equivalent to 'Epinine,' gr. 1/365, and Cocaine Hydrochloride, gr. 2/11, in each min. 10.

, 'Epinine' (Trade Mark), I in 100, boxes of 10.

.. 'Ernutin' (Trade Mark), min. 10 (0.592 c.c.), boxes of 6.

.. Eucaine Lactate, 0.01 gm. (gr. 1/6), boxes of 10.

.. Grey Oil. Containing Mercury, 0-1 gm. (gr. 1-1/2), in a Neutral Fatty Basis, boxes of 10.

,, Hyoscine Hydrobromide, 0.0005 gm. (gr. 1/130), boxes of 10.

.. Iron and Arsenic, boxes of 10.

R Ferri Citratis Viridis ... 0.05 gm. (gr. 3/4) Sodii Arsenatis ... 0.002 gm. (gr. 1/32) Aquam ... ad 1 c.c.

,, Morphine Hydrochloride, 0.01 gm. (gr. 1/6) and 0.02 gm. (gr. 1/3), boxes of 10.

Pituitary (Infundibular) Extract, 0.5 c.c. and 1 c.c. of Sterile Extract, boxes of 6.

,, Quinine Bihydrochloride, 0.2 gm. (gr. 3) and 0.4 gm. (gr. 6), boxes of 10.

,, Strychnine Sulphate, 0.001 gm. (gr. 1/65) and 0.002 gm. (gr. 1/32), boxes of 10.

## For Inhalation

Thin glass capsules surrounded with absorbent material and enclosed in silken netting.

- ,, Amyl Nitrite, min. 3 (0·178 c.c.) and min. 5 (0·296 c.c.), boxes of 12
- ,, Aromatic Ammonia, for use as "Smelling Salts," boxes of 12.
- .. Chloroform and Ethyl Iodide Compound, boxes of 6.

R Chloroformi ... min. 10 (0.592 c.c.)

Ethyl Iodidi ... min. 5 (0.296 c.c.)

Menthol ... gr. 1/8 (0.008 gm.)

# 'Vaporole' Brand Ammonium Chloride Inhaler

Delivers perfectly neutral fumes of pure ammonium chloride. A model of compactness, convenience and utility.

'VAPOROLE' ACID AND ALKALI, for use in the above Inhaler, are supplied in boxes of 12 products.

Nasal Attachment for use with above Inhaler.

Various other products are also issued under this brand

Veterinary Hypodermic Products, 'Tabloid' Brand (See B. W. & Co.'s Price List)

Veterinary Ophthalmic Products, 'Tabloid' and 'Soloid' Brands (See B. W. & Co.'s Price List)

Vulcanite Nozzles-Curved or Straight.

To screw on collapsible tubes of 'Hazeline' Cream, when it is desired to apply this preparation to the mucous membranes of the nose, ear, urethra or rectum.

Water Analysis, A Simple Method of (7th Edition)
By J. C. Thresh, M.D., D.Sc., etc.

This standard text-book affords all the information necessary to enable those with only a small knowledge of analysis to perform a chemical examination of a sample of drinking-water by means of 'Soloid' Brand Water Analysis Cases. A chapter on the examination of sewage effluents is included.

Water Analysis Cases, 'Soloid' Brand (see page 175)
'Wellcome' Brand Products (see pages 273-300)

Verbal Instructions are not safe. To prevent fraud, it is best to write prescriptions for original bottles. . .



## PRODUCTS

The word 'WELLCOME' is a trade mark or brand which designates fine products issued by Burroughs Wellcome & Co. To ensure the supply of pure and reliable preparations, this brand should always be specified when ordering.

IN 'WELLCOME' Brand PRODUCTS, the object is to establish a series of Chemicals and Galenicals whose use will enable the physician to administer to the patient the precise dose of operative medicinal substance desired. A first principle in their production is, therefore, the of variants elimination of factors of variability and of their contributory causes. In the case of galenicals it was felt that control should begin, ab initio, with the plants as grown. With a view to securing and maintaining a supply of crude drugs of sufficiently high standards of quality, the 'Wellcome' Materia Medica Farm was, therefore, established, on which the raw material might be produced. This, at a stroke, abolished wide variations consequent upon the vagaries of collectors, and secured a vast advantage in uniformity of crop. Further, by experimental research and the propagation and scientific culture of selected varieties, together with control of site, soil, fertilisers and so forth, uniform yield in content was aimed at. Accurate standardisation of 'Wellcome' Brand Galenicals is assured by chemical tests, or where such tests are inapplicable, by physiological methods. In addition, they are standardised, wherever possible, according to the amount of active principle, and not of total alkaloids.

In the case of chemicals, existing official standards have been revised, and 'Wellcome' Chemicals are required to conform to standards of extreme stringency, the outcome of long experience and extensive Standards of research. Particular attention has been devoted to the preparation of fine alkaloids and the standards adopted are in very many instances higher than those of the British Pharmacopæia.

In all 'Wellcome' Brand Products exceptional purity is secured by excellence of raw materials and by the exercise of scrupulous care in all processes of preparation, in every stage from raw material to perfected product; while the drastic

nature of the tests and controls imposes a high degree of potency and uniformity of content. 'Wellcome' Standards are being continually revised to accord with the latest research and investigation.

## 'WELLCOME' BRAND-

## ,, Aconitine (Pure Alkaloid), B.P.

The pure crystallised alkaloid from Aconitum napellus, free from pseudaconitine and japaconitine, and from the non-toxic aconine and benzaconine. Owing to its extremely poisonous properties, aconitine should be prescribed and dispensed with the utmost caution.

Dose—gr. 1/640 to gr. 1/400 (0.0001 gm. to 0.00016 gm.)

Tubes of gr. 5 (0.3 gm.)

## ,, Aconitine Hydrobromide

The most suitable salt of aconitine for therapeutic use. It is readily soluble in water, perfectly stable, and of uniform composition. The remarks as to purity and dosage of the alkaloid apply also to this salt.

Dose—gr. 1/640 to gr. 1/400 (0.0001 gm. to 0.00016 gm.) Tubes of gr. 5 (0.3 gm.)

## ,, Aloin, B.P.

Free from resin. Lighter in colour and affords a clearer solution than the usual commercial article.

Dose—gr. 1/2 to gr. 2 (0.03 gm. to 0.13 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

## ,, Aloin, B.P., Crystal

Well-defined crystals. Free from resin.

Dose—gr. 1/2 to gr. 2 (0.03 gm. to 0.13 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

## ,, Apomorphine Hydrochloride, B.P.

This is the pure salt, the melting point of which is 295°-300°C.,—not 276° as usually stated.

Dose—Hypodermically, gr. 1/20 to gr. 1/10 (0.0032 gm. to 0.0065 gm.)

Orally, gr. 1/10 to gr. 1/4 (0.0065 gm. to 0.015 gm.)

Bottles of I gramme and 5 grammes.

## 'WELLCOME' BRAND-

" Atropine (Pure Alkaloid), B.P.

Free from hyoscyamine and hyoscine.

Dose-gr. 1/200 to gr. 1/100 (0.0003 gm. to 0.0006 gm.)

Bottles of gr. 60 (3.9 gm.), oz. 1/4 (7 gm.) and oz. 1 (28.3 gm.)

,, Atropine Sulphate, B.P.

Prepared from pure atropine.

Dose-gr. 1/200 to gr. 1/100 (0.0003 gm. to 0.0006 gm.)

Bottles of gr. 60 (3.9 gm.), oz. 1/4 (7 gm.) and oz. 1 (28.3 gm.)

" Berberine Sulphate

The salt of an alkaloid obtained from Hydrastis canadensis.

Dose-gr. 2 to gr. 5 (0.13 gm. to 0.3 gm.)

Bottles of oz. I (28:3 gm.)

,, Bismuth and Iron Citrate (Soluble)

In yellowish-green scales, readily soluble in water. The Bismuth and Iron Citrates are so combined as to represent as nearly as possible equal parts by weight of their respective anhydrous salts.

Dose-gr. 5 to gr. 10 (0.3 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Bismuth and Lithium Citrate (Soluble)

In handsome, colourless scales, readily soluble in water. Is indicated when the joint therapeutic effects of lithium and bismuth are desired. The proportion of lithium, in combination, corresponds to 25–30 per cent., by weight, of anhydrous lithium citrate.

Dose-gr. 2 to gr. 5 (0.13 gm. to 0.3 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Bismuth Carbonate, B.P.

Dose-gr. 5 to gr. 20 (0.3 gm. to 1.3 gm.)

Cartons of oz. 8 (227 gm.) and oz. 16 (454 gm.)

#### 'WELLCOME' BRAND-

#### ,, Bismuth Citrate

Practically free from nitrate (containing less than 0.05 per cent. of N<sub>2</sub>O<sub>5</sub>). Renders a clear solution with ammonia, and may be used for preparing the official Liquor Bismuthi, P.B.

Dose—gr. 2 to gr. 5 (0·13 gm. to 0·3 gm.)

Bottles of oz. 4 (113 gm.), oz. 8 (227 gm.) and oz. 16 (454 gm.)

## "Bismuth Oxychloride

This salt is presented as an exceptionally light and fine powder, making it suitable for use for toilet purposes.

Dose—gr. 5 to gr. 20 (0·3 gm. to 1·3 gm.)

Bottles of oz. 4 (113 gm.), oz. 8 (227 gm.) and oz. 16 (454 gm.)

## ,, Bismuth Salicylate (Physiologically Pure)

This preparation contains the proper proportion of bismuth combined with pure salicylic acid, and is uniform in composition.

Dose—gr. 5 to gr. 20 (0.3 gm. to 1.3 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

## ,, Bismuth Subgallate

This is in a state of very fine powder—a condition which renders it eminently suitable for local application.

Dose—gr. 10 to gr. 20 (0.65 gm. to 1.3 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

## ,, Bismuth Subnitrate, B.P.

Dose—gr. 5 to gr. 20 (0·3 gm. to 1·3 gm.)

Cartons of oz. 8 (227 gm.) and oz. 16 (454 gm.)

## ,, Bismuth Tartrate (Soluble)

Readily soluble in water, yielding a bright permanent solution. Being slightly acid it is chemically and physiologically compatible with pepsin. 185 grains (12 gm.) with distilled water to 3-1/2 fl. oz. (100 c.c.) yield a preparation corresponding in strength to Liq. Bismuthi, P.B.

Dose—gr. 2 to gr. 5 (0·13 gm. to 0·3 gm.)

Bottles of oz. 1 (28·3 gm.) and oz. 4 (113 gm.)

## WELLCOME' BRAND-

" Hyoscyamine (Pure Alkaloid)

Lævo-rotatory. Free from atropine and hyoscine. This product will always be supplied unless dextro-Hyoscyamine is specified.

Dose-gr. 1/200 to gr. 1/100 (0-0003 gm. to 0-0006 gm.)
Tubes of gr. 5 (0-3 gm.) and 1 gramme.

,, Hyoscyamine (dextro-Hyoscyamine)

The optical isomeride of lævo-Hyoscyamine. It is inferior to its lævo-isomer in physiological activity.

Tubes of gr. 5 (0.3 gm.). Bottles of 1 gramme.

,, Hyoscyamine Sulphate, B.P.

Salt of pure lævo-rotatory Hyoscyamine. It is free from its dextro-isomer, which is much less active physiologically.

Dose—gr. 1/200 to gr. 1/100 (0.0003 gm. to 0.0006 gm.) Tubes of gr. 5 (0.3 gm.) and 1 gramme.

,, Ipecacuanha sine Emetina

Ipecacuanha from which the emetic principles have been extracted. Practically free from alkaloid.

Dose—gr. 10 to gr. 30 (0.65 gm. to 2 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

- ., Iridin (see page 292)
- ,, Iron and Ammonium Citrate, B.P.

Dose-gr. 5 to gr. 10 (0.3 gm. to 0.65 gm.)

Bottles of oz. 4 (113 gm.) and oz. 8 (227 gm.); and in

tins of 1 lb. (454 gm.)

,, Iron and Ammonium Citrate (Green)

Differs slightly in composition from the official citrate, and contains about 15 per cent. of iron. It is readily soluble in water.

Dose—gr. 5 to gr. 10 (0.3 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

., Iron and Quinine Citrate, B.P.

Dose-gr. 5 to gr. 10 (0.3 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.), oz. 8 (227 gm.) and oz. 16 (454 gm.)

## 'WELLCOME' BRAND-

## ., Iron Arsenate (Soluble)

Handsome green scales, containing arsenic equivalent to 34-35 per cent. of anhydrous ferric arsenate.

Dose-gr. 1/16 to gr. 1/4 (0.004 gm. to 0.015 gm.)

Bottles of oz. 1 (28.3 gm.)

## ,, Iron Glycerophosphate

Handsome scales, readily soluble in warm water.

Dose-gr. 3 to gr. 6 (0.2 gm. to 0.4 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

## ,, Iron Hypophosphite (Soluble)

Handsome greenish scales, distinguished from the ordinary iron hypophosphite by being readily soluble in water. Contains about 12 per cent. of iron.

Dose-gr. 1 to gr. 5 (0.06 gm. to 0.3 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

## ,, Iron Phosphate (Soluble)

In the form of bright green transparent scales, freely soluble in water. Corresponds to the preparation recognised by the United States Pharmacopæia.

Dose-gr. 5 to gr. 10 (0.3 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

## ,, Iron Pyrophosphate (Soluble)

Soluble ferric pyrophosphate in green scales. It corresponds to the preparation recognised by the United States Pharmacopœia.

Dose-gr. 5 to gr. 10 (0.3 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

## ,, Leptandrin

The true resinous principle of Veronica virginica (Leptandra virginica), as distinguished from much of the leptandrin of commerce, which is merely an extract.

Dose-gr. 1/4 to gr. 2 (0.015 gm. to 0.13 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

#### 'WELLCOME' BRAND-

,, Lithium Benzoate

Dose—gr. 5 to gr. 10 (0·3 gm. to 0·65 gm.)

Bottles of oz. 1 (28·3 gm.) and oz. 4 (113 gm.)

,, Lithium Citrate, B.P.

Dose—gr. 5 to gr. 10 (0.3 gm. to 0.65 gm.)

Bottles of oz 1 (28.3 gm.), oz. 4 (113 gm.), oz. 8

(227 gm.) and oz. 16 (454 gm.)

., Lithium Formate

Dose—gr. 5 to gr. 10 (0.3 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.)

" Lithium Salicylate (Physiologically Pure)

Dose—gr. 5 to gr. 10 (0·3 gm. to 0·65 gm.)

Bottles of oz. 1 (28·3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

" Magnesium Glycerophosphate

Dose-gr. 3 to gr. 10 (0.2 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Manganese and Iron Citrate (Soluble)

Scale salt, easily soluble in water. Contains about 7 per cent. of manganese and 14 per cent. of iron in organic combination.

Dose—gr. 3 to gr. 10 (0.2 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.), oz. 8 (227 gm.) and oz. 16 (454 gm.)

,, Manganese and Iron Citrate with Arsenic (Soluble)

Contains 0.5 per cent. of arsenious anhydride, but is otherwise identical with Manganese and Iron Citrate (Soluble).

Dose—gr. 3 to gr. 10 (0.2 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Manganese and Iron Citrate with Quinine (Soluble)

Contains 15 per cent. of quinine, but is otherwise identical with Manganese and Iron Citrate (Soluble).

Dose-gr. 3 to gr. 10 (0.2 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

## 'WELLCOME' BRAND-

,, Manganese and Iron Citrate with Strychnine (Soluble)

Contains I per cent. of strychnine, but is otherwise identical with Manganese and Iron Citrate (Soluble).

Dose—gr. 1 to gr. 3 (0.06 gm. to 0.2 gm.)

Bottles of oz. I (28.3 gm.) and oz. 4 (113 gm.)

,, Manganese and Iron Phosphate (Soluble)

A scale salt readily soluble in warm water. Contains about 7 per cent. of manganese and 14 per cent. of iron. Dose—gr. 3 to gr. 10 (0.2 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.), oz. 8 (227 gm.) and oz. 16 (454 gm.)

,, Manganese Citrate (Soluble)

In the form of handsome, nearly colourless scales, readily soluble in water, containing about 12 per cent. of manganese in organic combination.

Dose—gr. 3 to gr. 10 (0.2 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Manganese Hypophosphite

Dose—gr. 1 to gr. 10 (0.06 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Manganese Peroxide (Pure)

Contains approximately 85 per cent. of MnO<sub>2</sub>. Dose—gr. 2 to gr. 10 (0·13 gm. to 0·65 gm.)

Bottles of oz. 1 (28·3 gm.) and oz. 4 (113 gm.)

,, Mercuric Potassium Iodide (Soluble)

Dose—gr. 1/12 to gr. 1/3 (0.005 gm. to 0.02 gm.)

Bottles of oz. I (28.3 gm.) and oz. 4 (113 gm.)

,, Mercury Iodide, Red, B.P. (Mercuric Iodide)

Dose—gr. 1/32 to gr. 1/16 (0.002 gm. to 0.004 gm.)

Bottles of oz. I (28.3 gm.), oz. 4 (113 gm.), oz. 8

(227 gm.) and oz. 16 (454 gm.)

A true mercurous iodide of definite and constant composition. Contains no free mercury.

Dose—gr. 1/8 to gr. 1 (0.008 gm. to 0.06 gm.)

Bottles of oz. 1 (28.3 gm.)

## WELLCOME' BRAND-

" Mercury Oleate

This preparation contains an amount of mercury equivalent to 20 per cent. of mercuric oxide.

Pots of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

" Mercury Oxide, Vellow, B.P.

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Mercury Subchloride, B.P. (Calomel)

Of uniform physical character, prepared by sublimation. Being free from mercuric chloride and other contaminations, it exhibits the desired uniformity of action.

Dose-gr. 1/2 to gr. 5 (0.03 gm. to 0.3 gm.)

Bottles of oz. 4 (113 gm.), oz. 8 (227 gm.) and oz. 16 (454 gm.)

" Morphine Acetate, B.P.

Dose-gr. 1/8 to gr. 1/2 (0.008 gm. to 0.03 gm.)

Bottles of oz. 1/8 (3.5 gm.), oz. 1/2 (14 gm.), oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

" Morphine Hydrochloride, B.P.

Dose-gr. 1/8 to gr. 1/2 (0.008 gm, to 0.03 gm.)

Bottles of oz. 1/8 (3.5 gm.), oz. 1/2 (14 gm.), oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

" Morphine Sulphate

Dose-gr. 1/8 to gr. 1/2 (0.008 gm. to 0.03 gm.)

Bottles of oz. 1/8 (3.5 gm.), oz. 1/2 (14 gm.), oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

" Morphine Tartrate, B.P.

Dose-gr. 1/8 to gr. 1/2 (0.008 gm. to 0.03 gm.)

Bottles of oz. 1/2 (14 gm.), oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Nicotine

Pure re-distilled alkaloid of Nicotiana tabacum.

Bottles of 1 gramme and 5 grammes.

## 'WELLCOME' BRAND-

", Nicotine Tartrate

A definite crystalline salt, readily soluble in water.

Bottles of 1 gramme and 5 grammes.

,, Pelletierine Tannate

Dose—gr. 2 to gr. 8 (0-13 gm. to 0-5 gm.)

Bottles of gr. 60 (3-9 gm.)

" Physostigmine (Pure Alkaloid)

Tubes of gr. 2 (0.13 gm.) and gr. 5 (0.3 gm.)

,, Physostigmine Hydrobromide (Eserine Hydrobromide)

A readily soluble salt, non-deliquescent and stable, and consequently to be preferred to the sulphate.

Dose-gr. 1/60 to gr. 1/20 (0.001 gm. to 0.003 gm.) Tubes of gr. 5 (0.3 gm.) and 1 gramme.

,, Physostigmine Salicylate (Eserine Salicylate)

Dose—gr. 1/60 to gr. 1/20 (0.001 gm. to 0.003 gm.) Tubes of gr. 5 (0.3 gm.) and 1 gramme.

,, Physostigmine Sulphate (Eserine Sulphate), B.P.

Dose-gr. 1/60 to gr. 1/20 (0.001 gm. to 0.003 gm.)

Tubes of gr. 1/2 (0.03 gm.), gr. 1 (0.06 gm.), gr. 2 (0.13 gm.) and gr. 5 (0.3 gm.)

,, Pilocarpine Hydrochloride

The 'Wellcome' Brand salts of pilocarpine are free from the less active *iso*pilocarpine and the inactive pilocarpidine. Purity is guaranteed by the respective melting points, which are indicated on each package.

Dose-gr. 1/20 to gr. 1/2 (0.003 gm. to 0.03 gm.)

Tubes of 1 gramme. Bottles of gr. 60 (3.9 gm.), oz. 1/2 (14 gm.) and oz. 1 (28.3 gm.)

" Pilocarpine Nitrate, B.P.

The nitrate is stable, and is the salt best adapted for general use.

Dose-gr. 1/20 to gr. 1/2 (0.003 gm. to 0.03 gm.)

Tubes of 1 gramme. Bottles of gr. 60 (3.9 gm.), oz. 1/2 (14 gm.) and oz. 1 (28.3 gm.)

## 'WELLCOME' BRAND-

,, Piperine

The pure, crystallised alkaloid of black pepper.

Dose--gr. 1 to gr. 5 (0.06 gm. to 0.3 gm.)

Bottles of oz. 1 (28.3 gm.)

" Podophyllin (Podophylli Resina, P.B.)

Prepared strictly in accordance with the official method, from a carefully-selected drug.

Dose-gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

" Potassium Glycerophosphate

A syrupy liquid containing 50 per cent. of anhydrous potassium glycerophosphate.

Dose-gr. 3 to gr. 8 (0.2 gm. to 0.5 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Potassium Hypophosphite

Dose-gr. 1 to gr. 6 (0.06 gm. to 0.4 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

" Quinine Acetyl-salicylate

This product combines the therapeutic effects of quinine with those of acetyl-salicylic acid.

Dose-gr. 2 to gr. 5 (0.13 gm. to 0.3 gm.)

Bottles of oz. 1 (28.3 gm.)

" Quinine Bihydrochloride

Dose-gr. 1 to gr. 10 (0.06 gm. to 0.65 gm.)

Bottles of oz. I (28.3 gm.)

,, Quinine Bisulphate

Dose-gr. 1 to gr. 10 (0.06 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Quinine Hydrobromide

Dose-gr. 1 to gr. 10 (0.06 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

" Quinine Hydrochloride, B.P.

Dose-gr. 1 to gr. 10 (0.06 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

## 'WELLCOME' BRAND-

## " Quinine Hypophosphite

Dose—gr. 1 to gr. 3 (0.06 gm. to 0.2 gm.)

Bottles of oz. 1 (28.3 gm.)

#### " Quinine Lactate

Dose—gr. 1 to gr. 5 (0-06 gm. to 0-3 gm.)

Bottles of oz. 1 (28-3 gm.)

#### " Quinine Phosphate

Dose—gr. 1 to gr. 10 (0-06 gm. to 0-65 gm.)

Bottles of oz. 1 (28-3 gm.)

#### ,, Quinine Quinate

Dose—gr. 1 to gr. 10 (0.06 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.)

#### " Quinine Salicylate

Prepared from physiologically pure salicylic acid. Dose—gr. 2 to gr. 6 (0·13 gm. to 0·4 gm.)

Bottles of oz. 1 (28·3 gm.) and oz. 4 (113 gm.)

#### ,, Quinine Sulphate (Compact)

This salt is presented in a more compact form of crystals than that usually supplied, but is identical in composition with the official salt. Its diminished bulk renders it more convenient for storage and dispensing.

Dose-gr. 1 to gr. 10 (0.06 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.). Tins of oz. 25 (709 gm.) and oz. 100 (2835 gm.)

## ,, Quinine Sulphate (Large Flake), B.P.

This is the official salt in the usual bulky form of light feathery crystals.

We recommend in preference the compact crystals, which occupy one-third the space, as being more portable and convenient.

When ordering Quinine Sulphate, please indicate whether "compact" or "large flake" is required.

Dose-gr. 1 to gr. 10 (0.06 gm. to 0.65 gm.)

Bottles of oz. 1/4 (7 gm.), oz. 1/2 (14 gm.) and oz. 1 (28·3 gm.). Tins of oz. 4 (113 gm.); also oz. 25 (709 gm.) and oz. 100 (2835 gm.)

## 'WELLCOME' BRAND-

" Scammony Resin, B.P.

This resin is issued in the form of a fine, light-coloured powder, which is specially convenient for dispensing.

Dose-gr. 3 to gr. 8 (0-2 gm. to 0-5 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

" Sodium Formate

Bottles of oz. I (28.3 gm.)

,, Sodium Glycerophosphate

In the form of colourless crystalline flakes, permanent in air.

Dose—gr. 2 to gr. 5 (0.13 gm. to 0.3 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

" Sodium Hypophosphite (Pure Crystals)

In colourless transparent crystals containing one molecule of water of crystallisation. It is free from phosphate and phosphite.

Dose-gr. 3 to gr. 10 (0.2 gm. to 0.65 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Sodium Salicylate, B.P. (Physiologically Pure)

This salt is issued in "powder" and in "flake." When ordering, please indicate which is required.

Dose-gr. 10 to gr. 30 (0.65 gm. to 2 gm.)

Note.—Concentrated aqueous solutions (1 in 2) of pure Sodium Salicylate, when stored at low temperatures, are liable to deposit crystals of a somewhat less soluble salt, having the formula C<sub>0</sub>H<sub>4</sub> (OH) COONa, 6 H<sub>2</sub>O. When the bottle, in which crystallisation has occurred, is placed in warm water, the crystals rapidly dissolve, and, after well shaking, the original solution is again obtained.

Bottles of oz. 4 (113 gm.), oz. 8 (227 gm.) and cartons of 1 lb. (454 gm.)

" Sodium Salicylate (Natural)

Dose-gr. 10 to gr. 30 (0.65 gm. to 2 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

" Sparteine Sulphate

Dose—gr. 1/6 to gr. 1 (0.01 gm. to 0.06 gm.)

Bottles of gr. 60 (3.9 gm.) and oz. 1 (28.3 gm.)

#### 'WELLCOME' BRAND-

,, Strophanthin

A preparation of uniform activity, controlled by physiological test.

Dose—gr. 1/500 to gr. 1/100 (0.00013 gm. to 0.0006 gm.)

Bottles of gr. 5 (0.3 gm.) and 1 gramme.

,, Strychnine (Pure Alkaloid), B.P.

Dose—gr. 1/60 to gr. 1/15 (0.001 gm. to 0.004 gm.)

Bottles of oz. 1 (28.3 gm.)

,, Strychnine Hydrochloride, B.P.

Dose—gr. 1/60 to gr. 1/15 (0.001 gm. to 0.004 gm.)

Bottles of oz. 1 (28.3 gm.)

., Veratrine

The pure Alkaloid, not the mixture of alkaloids to which the name Veratrine is also applied.

Tubes of gr. 5 (0.3 gm.). Bottles of 1 gramme and gr. 60 (3.9 gm.)

## EXTRACTS, TRADE 'WELLCOME' BRAND

'Wellcome' Brand Extracts are prepared from speciallyselected drugs of the highest quality, carefully picked over before treatment.

#### 'WELLCOME' BRAND-

,, Aloes, B.P., Extract of Barbados

This preparation is made strictly according to the official method.

Dose—gr. 1 to gr. 4 (0.06 gm. to 0.25 gm.)

Bottles of oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Belladonna, B.P., Alcoholic Extract of

This preparation is made strictly according to the official method, and is standardised to contain I per cent, of total alkaloid.

Dose—gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Belladonna, B.P., Green Extract of

This preparation is made strictly according to the official method.

Dose—gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.)

Pots of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

## 'WELLCOME' BRAND-

" Belladonna, Standardised, Green Extract of

This preparation is standardised to contain 1 per cent. of total alkaloid.

Dose-gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.) Pots of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

" Cannabis Indica, B.P., Extract of (Physiologically controlled, Wellcome Physiological Research Laboratories)

This preparation is made strictly according to the official method.

Dose-gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.) Pots of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

" Cascara Sagrada, B.P., Extract of

This preparation is made strictly according to the official method.

Dose-gr. 2 to gr. 8 (0.13 gm. to 0.5 gm.) Bottles of oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Colchicum, B.P., Extract of

This preparation is made strictly according to the official method.

Dose-gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.) Pots of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Colocynth, Powdered Compound Extract of

This preparation corresponds to the B.P. Extract.

Dose-gr. 2 to gr. 8 (0.13 gm. to 0.5 gm.)

Bottles of oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Ergot, B.P., Extract of (Ergotin)

(Made from ergot physiologically tested in the Wellcome Physiological Research Laboratories)

The ergot is carefully hand-picked and freed from all foreign matter. The extract is free from the objectionable properties sometimes imparted by excessive heat.

Dose-gr. 2 to gr. 8 (0.13 gm. to 0.5 gm.) Pots of oz. I (28.3 gm.)

#### 'WELLCOME' BRAND-

,, Euonymus, B.P., Dry Extract of (Euonymin)

Prepared from the true drug, Euonymus atropurpureus, carefully picked over by hand before extraction.

Dose-gr. 1 to gr. 2 (0.06 gm. to 0.13 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Gentian, B.P., Extract of

This preparation is made strictly according to the official method.

Dose-gr. 2 to gr. 8 (0-13 gm. to 0-5 gm.)

Pots of oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Hyoscyamus, B.P., Green Extract of

This preparation is made strictly according to the official method, but is standardised to contain 0.2 per cent, of total alkaloid.

Dose-gr. 2 to gr. 8 (0.13 gm. to 0.5 gm.)

Pots of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Iris, Dry Extract of (Iridin)

From the carefully selected genuine Iris versicolor.

Dose-gr. 1 to gr. 5 (0.06 gm. to 0.3 gm.)

Bottles of oz. 1 (28.3 gm.), oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Jalap, Powdered Extract of

This preparation corresponds to the B.P. Extract.

Dose-gr. 2 to gr. 8 (0.13 gm. to 0.5 gm.)

Bottles of oz. 1 (28.3 gm.) and oz. 4 (113 gm.)

,, Liquorice, B.P., Extract of

This preparation is made strictly according to the official method.

Pots of oz. 4 (113 gm.) and oz. 8 (227 gm.)

,, Taraxacum, B.P., Extract of

This preparation is made strictly according to the official method.

Dose-gr. 5 to gr. 15 (0.3 gm. to 1 gm.)

Pots of oz. 4 (113 gm.) and oz. 8 (227 gm.)

# STANDARDISED GRANULAR EXTRACTS \*\*WELLCOME' BRAND

'Wellcome' Brand Granular Extracts possess many advantages over the usual form of solid extracts. They are uniform and reliable, and more convenient for dispensing than the ordinary extracts.

In bottles of oz. 1 (28.3 gm.)

## 'WELLCOME' BRAND-

- ", Belladonna (Green), Standardised Granular Extract of
  This preparation corresponds to the B.P. Extract, but
  is standardised to contain I per cent. of total alkaloid.

  Dose—gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.)
- \*,, Cascara Sagrada, Granular Extract of

  This preparation corresponds to the B.P. Extract.

  Dose—gr. 2 to gr. 8 (0.13 gm. to 0.5 gm.)

  \* Also in bottles of oz. 4 (113 gm.)
  - ,, Ergot, Granular Extract of

    (Made from ergot physiologically tested in the Wellcome

    Physiological Research Laboratories)

    This preparation corresponds to the B.P. Extract.

    Dose—gr. 2 to gr. 8 (0.13 gm. to 0.5 gm.)
  - ,, Hyoscyamus, Standardised Granular Extract of

    This preparation corresponds to the B.P. Extract, but is standardised to contain 0·2 per cent. of total alkaloid.

    Dose—gr. 2 to gr. 8 (o·13 gm. to o·5 gm.)
  - ,, Nux Vomica, Standardised Granular Extract of

    This preparation corresponds to the B.P. Extract, and
    contains 5 per cent. of strychnine.

    Dose—gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.)
  - ", Opium, Standardised Granular Extract of

    This preparation corresponds to the B.P. Extract, and contains 20 per cent. of morphine.

    Dose—gr. 1/4 to gr. 1 (0.015 gm. to 0.06 gm.)

#### 'WELLCOME' BRAND-

" Rhubarb, Granular Extract of

This preparation is made by a special process, whereby the full therapeutic value of the rhubarb is retained.

Dose-gr. 2 to gr. 6 (0-13 gm. to 0-4 gm.)

## STANDARDISED LIQUID EXTRACTS

THADE 'WELLCOME' BRAND

These are standardised to represent definite quantities not of total alkaloids but of the active principle of the drug, so far as possible. With the exception of the B.P. preparations, which are prepared strictly according to the official directions, they are made by a special process embodying the latest researches on the subject. The miscible liquid extracts mix clear with water, and on this account may be employed with advantage when the ordinary liquid extracts would prove quite unsuitable. The reliability and uniformity of 'Wellcome' Brand Standardised Liquid Extracts commend them both for prescribing and for dispensing.

In bottles of fl. oz. 4 (114 c.c.), fl. oz. 8 (227 c.c.) and fl. oz. 16 (455 c.c.), with the exception of the Aromatic Liquid Extract, the Liquid Extract, the Glycerinated Liquid Extract of Cascara Sagrada, and Liquorice Liquid Extract, which are issued only in bottles of fl. oz. 16 (455 c.c.)

#### 'WELLCOME' BRAND-

,, Aconite, Liquid Extract of

Standardised to contain 0.2 gm. of ether-soluble alkaloid in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 1/4 to min. 1 (gtt. 1/4 to gtt. 1)

,, Belladonna, B.P., Liquid Extract of

Made strictly according to the official method, and standardised to contain 0.75 gm. of total alkaloid in 100 c.c. of extract.

Dose-min. 1/3 to min. 1 (gtt. 1/3 to gtt. 1)

## 'WELLCOME' BRAND-

,, Calabar Bean, Liquid Extract of

Made by a special process, and standardised to contain 0.15 gm. of total alkaloid in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 1 to min. 4 (gtt. 1 to gtt. 4)

" Cascara Sagrada, Aromatic Liquid Extract of

Made by a special process, is palatable and aromatic, and possesses the full activity of the official liquid extract, but contains less inert extractive.

It does not deposit on keeping, nor does it precipitate when diluted.

Dose { Laxative, min. 15 to min 30 (0.9 c.c. to 1.8 c.c.) Cathartic, min. 30 to min. 60 (1.8 c.c. to 3.5 c.c.)

,, Cascara Sagrada, B.P., Liquid Extract of Made strictly according to the official method.

Dose-min. 30 to min. 60 (1.8 c.c. to 3.5 c.c.)

- ,, Cascara Sagrada, Glycerinated Liquid Extract of Dose—min. 30 to min. 60 (1.8 c.c. to 3.5 c.c.)
- ,, Cinchona, B.P., Liquid Extract of

Made strictly according to the official method, and standardised to contain 5 gm. of total alkaloid in 100 c.c. of extract.

Dose-min. 5 to min. 15 (gtt. 5 to 0.9 c.c.)

,, Cinchona (Miscible), Liquid Extract of

Made by a special process, and standardised to contain 5 gm. of total alkaloid in 100 c.c. of extract.

Dose-min. 5 to min. 15 (gtt. 5 to 0.9 c.c.)

" Coca, B.P., Liquid Extract of

Made strictly according to the official method, but standardised to contain 0.5 gm. of petroleum-ethersoluble alkaloid in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 30 to min. 60 (1.8 c.c. to 3.5 c.c.)

#### 'WELLCOME' BRAND-

## ,, Coca (Miscible), Liquid Extract of

Made by a special process, and standardised to contain 0.5 gm. of petroleum-ether-soluble alkaloid in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 30 to min. 60 (1.8 c.c. to 3.5 c.c.)

## ,, Colchicum Seeds, Liquid Extract of

Standardised to contain 0.5 gm. of colchicine in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 1 to min. 3 (gtt. 1 to gtt. 3)

## ,, Ergot, B.P., Liquid Extract of

(Made from ergot physiologically tested in the Wellcome Physiological Research Laboratories)

Made strictly according to the official method.

Dose-min. 10 to min. 30 (0.6 c.c. to 1.8 c.c.)

## ,, Gelsemium, Liquid Extract of

Standardised to contain 0-1 gm. of gelsemine in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 1 to min. 3 (gtt. 1 to gtt. 3)

## ,, Hamamelis, B.P., Liquid Extract of

Made strictly according to the official method.

Dose-min. 5 to min. 15 (gtt. 5 to 0.9 c.c.)

## ,, Hydrastis, B.P., Liquid Extract of

Made strictly according to the official method, but standardised to contain 2.5 gm. of hydrastine in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 5 to min. 15 (gtt. 5 to 0.9 c.c.)

## 'WELLCOME' BRAND-

,, Hyoscyamus, Liquid Extract of

Standardised to contain 0.1 gm. of total alkaloid in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 3 to min. 10 (gtt. 3 to 0.6 c.c.)

,, Hyoscyamus (Miscible), Liquid Extract of

Standardised to contain 0.1 gm. of total alkaloid in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 3 to min. 10 (gtt. 3 to 0.6 c.c.)

,, Ipecacuanha, B.P., Liquid Extract of

Made strictly according to the official method, and is standardised to contain from 2 gm. to 2.25 gm. of total alkaloid in 100 c.c. of extract.

Dose—Expectorant, min. 1/2 to min. 2 (gtt. 1/2 to gtt. 2)
Emetic, min. 15 to min. 20 (0.9 c.c. to 1.2 c.c.)

,, Jaborandi (Miscible), Liquid Extract of

Made by a special process, and is standardised to contain 0.5 gm. of pilocarpine in 100 c.c. of extract. One part by volume represents one part by weight of standard drug.

Dose-min. 5 to min. 15 (gtt. 5 to 0.9 c.c.)

,, Liquorice, Liquid Extract of

Made from the finest quality Spanish liquorice root, by a special process, which retains the full demulcent properties of the drug, and affords a product of exceptional flavour and covering power.

Dose-min. 30 to min. 60 (1.8 c.c. to 3.5 c.c.)

,, Nux Vomica, B.P., Liquid Extract of

Made strictly according to the official method, and standardised to contain 1.5 gm. of strychnine in 100 c.c. of extract.

Dose-min. 1 to min. 3 (gtt. 1 to gtt. 3)

#### 'WELLCOME' BRAND-

,, Opium, B.P., Liquid Extract of

Made strictly according to the official method, and standardised to contain 0.75 gm. of morphine in 100 c.c. of extract.

Dose-min. 5 to min. 30 (gtt. 5 to 1.8 c.c.)

,, Opium (Miscible), Liquid Extract of

Made by a special process by which the narcotine is removed, and the extract rendered miscible with water. It is standardised to contain 0.75 gm. of morphine in 100 c.c. of extract, and is identical in strength with the B.P. preparation.

Dose-min. 5 to min. 30 (gtt. 5 to 1.8 c.c.)

,, Sarsaparilla, B.P., Liquid Extract of

Made strictly according to the official method.

Dose-fl. dr. 2 to fl. dr. 4 (7 c.c. to 14 c.c.)

" Taraxacum, B.P., Liquid Extract of

Made strictly according to the official method.

Dose-min. 30 to fl. dr. 2 (1.8 c.c. to 7 c.c.)

## CONCENTRATED INFUSIONS

#### MARK 'WELLCOME' BRAND

'Wellcome' Brand Concentrated Infusions are made from carefully selected drugs by processes which preserve all the activity and aroma of the freshly-prepared infusions. They keep indefinitely and their diminished bulk renders them convenient for transport or storage. One fluid ounce added to seven fluid ounces of water makes a preparation corresponding to the official Infusion.

Bottles of fl. oz. 16 (455 c.c.)

## 'WELLCOME' BRAND-

- ,, Concentrated Infusion of Calumba
- ,, Concentrated Compound Infusion of Gentian
- ,, Concentrated Infusion of Quassia
- ,, Concentrated Infusion of Senega

# PHYSIOLOGICALLY STANDARDISED B.P. TINCTURES, THATE 'WELLCOME' BRAND

The methods adopted for physiologically standardising these preparations are based on results obtained in the Wellcome Physiological Research Laboratories and elsewhere, and are those which, in the light of our present knowledge, are best calculated to give accurate and reliable results.

Bottles of fl. oz. 4 (114 c.c.), fl. oz. 8 (227 c.c.) and fl. oz. 16 (455 c.c.)

Dose-min. 5 to min. 15 (gtt. 5 to 0.9 c.c.)

## WELLCOME' BRAND-

,, Tincture of Cannabis Indica, B.P.

(Physiologically controlled, Wellcome Physiological Research Laboratories)

,, Tincture of Digitalis, B.P.

(Physiologically standardised, Wellcome Physiological Research Laboratories)

,, Tincture of Squill, B.P.

(Physiologically standardised, Wellcome Physiological Research Laboratories)

## CONCENTRATED TINCTURES \*\*WELLCOME' BRAND

'Wellcome' Brand Concentrated Tinctures are prepared from picked drugs by a special process which retains the full therapeutic value, whilst the aroma of the diluted preparations is equal to that of tinctures prepared by the usual methods. They are specially suitable for dispensing, and their diminished bulk renders them convenient and economical for transport and storage.

The results of the alcoholic dilution of 'Wellcome' Brand Concentrated Tinctures are as shown on next page, one fluid ounce being used in each instance.

'Wellcome' Brand Concentrated Tincture of	Amount and strength of Alcohol required for dilution of 1 fl. oz. of Con. Tinct.	Preparations Corresponding to
Accession	0 5 0	The state of the s
Aconite	9 fl. oz. of 70%	Tincture of Aconite, B.P.
Arnica	9 ,, ,, 70%	,, ,, Arnica, B.P
Calumba	9 ,, ,, 60%	,, Calumba, B.P.
*Cannabis Indica	9 ,, ,, 60%	", Camphor Compound, B.P.
	9 ,, ,, 90%	,, Cannabis Indica, B.P.
Cantharides	9 ,, ,, 90%	,, Cantharides, B.P.
Capsicum	9 ,, 70%	" Capsicum, B.P.
Cardamoms Comp. Cascarilla	4 ,, ,, 60%	,, Cardamoms Comp., B.P.
	4 ,, ,, 70%	,, Cascarilla, B.P.
Catechu Chiretta	2 ,, ,, 60%	", Catechu, B.P.
Ciminifuma	4 ,, ,, 60%	,, Chiretta, B.P.
Cinchena	9 ,, ,, 60%	., Cimicifuga, B.P.
Cinchona Comp.	4 ,, ,, 70%	,, Cinchona, B.P.
Cochingal	4 ,, ,, 70%	,, Cinchona Compound, B. P.
Colchicum Seeds	9 11 11 45%	,, Cochineal, B.P.
Conjum	4 11 11 45%	", Colchicum Seeds, B.P.
Cultaba	4 ,, ,, 70%	,, Conium, B.P.
†Digitalie	4 ,, ,, 60%	,, Cubebs, B.P.
Calsemium		,, ,, Digitalis, B.P. ,, ,, Gelsemium, B.P.
Cantian Camp	9 ,, ,, 60%	Centian Compound R P
Ginger	9 ,, ,, 45%	Ginger R D
Hamamolie	0 1=0/	Hamamelie P P
Llone	600/	Hone R D
Hydractic	0 60%	Hydraetie R D
Hyoscyamus	0 1=0/	Hyosevamus P. P.
Iodine	9 ,, 11 45%	Lodina P. P.
Jaborandi	4 ,, ,, 45%	", ", Jaborandi, B.P.
Jalap	4 ,, ,, 70%	,, ,, Jalap, B.P.
Krameria	4 ,, ,, 60%	" " Krameria, B.P.
Lavender Comp.	9 ,, ,, 90%	", ", Lavender Compound, B. P.
Lobelia	0	,, ,,
	Spirit of Ether,	,, ,, Lobelia (Ethereal), B.P.
Myrrh	4 fl. oz. of 90%	,, ,, Myrrh, B.P.
Opium	9 ,, ,, 45%	,, ,, Opium, B.P.
Podophyllum	9 ,, ,, 90%	,, ,, Podophyllum, B.P.
Pyrethrum	9 ,, ,, 70%	,, ,, Pyrethrum, B.P.
Rhubarb Comp	4 ,, ,, 60%	,, ,, Rhubarb Compound, B. P.
Saffron	9 ,, ,, 60%	,, Saffron, B.P.
Senega	4 ,, ,, 60%	,, Senega, B.P.
Senna Compound	4 ,, ,, 45%	,, Senna Compound, B.P.
Serpentary	9 ,, ,, 70%	,, ,, Serpentary, B.P.
†Squill	4 ,, ,, 60%	,, ,, Squill, B.P.
Stramonium	4 ,, ,, 45%	,, ,, Stramonium, B.P.
†Strophanthus	9 ,, ,, 70%	,, Strophanthus, B.P.
Sumbul	9 ,, ,, 70%	,, ,, Sumbul, B.P.
Tolu	4 ,, ,, 90%	,, ,, Balsam of Tolu, B.P.
Valerian, Ammon.	3 ,, ,, 60%	,, ,, Valerian, Ammon., B.P.

<sup>\*</sup> Physiologically controlled, Wellcome Physiological Research Laboratories. † Physiologically standardised, Wellcome Physiological Research Laboratories.

'WELLCOME' Brand CHEMICALS
were awarded GRAND PRIZES at St. Louis, 1904; Liége, 1905;
Milan, 1906; Franco-British, London, 1908; Japan-British,
London, 1910; Brussels, 1910; Turin, 1911.



## WELLCOME' BRAND

## CONCENTRATED DIPHTHERIA ANTITOXIN

## In Syringe-containers

This product consists of the antitoxic globulins separated by a method of salt precipitation from Diphtheria Antitoxic Serum.

Although the fraction of the serum which is removed in the process of concentration possesses no antitoxic value, it is at least equally responsible with the antitoxin-bearing proteins for those incidental toxic symptoms which sera may produce in susceptible patients.

IMPORTANT.—In the resultant product 1000 Ehrlich units are contained in, at most, 1 c.c. of fluid as compared with the 2.5 c.c. necessary to contain the same number of units in the case of an average unconcentrated serum.

Physicians will appreciate the advantages which are afforded by such a reduction in the volume to be injected.

Each container presents an accurate dose of antitoxin in a thoroughly reliable syringe.

(See page 219)



## BURROUGHS WELLCOME & CO.

Chief Offices and Warehouses-London (Eng.) London Telephone Number—"CITY SIX THOUSAND" (8 lines)
Address for Cables and Radiotelegrams—"Tabloid, London"
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101-109, CORISTINE BUILDING ST. NICHOLAS & ST. PAUL STS., MONTREAL G.P.O. Box-" 159" Telephone Nos .- " MAIN 93 & 94" Cable Address-"TABLOID, MONTREAL

United States of America 35, 37 & 39, WEST THIRTY-THIRD STREET (NEAR FIFTH AVENUE), NEW YORK CITY Australasia

481, KENT STREET, SYDNEY, N.S.W.

South Africa

5, LOOP STREET, CAPE TOWN

Italy

26, VIA LEGNANO, MILAN China

44. SZECHUEN ROAD. SHANGHAI

Argentina

CALLE PIEDRAS 334, BUENOS AIRES India

COOK'S BUILDING, HORNBY ROAD, BOMBAY

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CALGARY, ALBERTA-James Findlay Drug Co.

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Drug Co.

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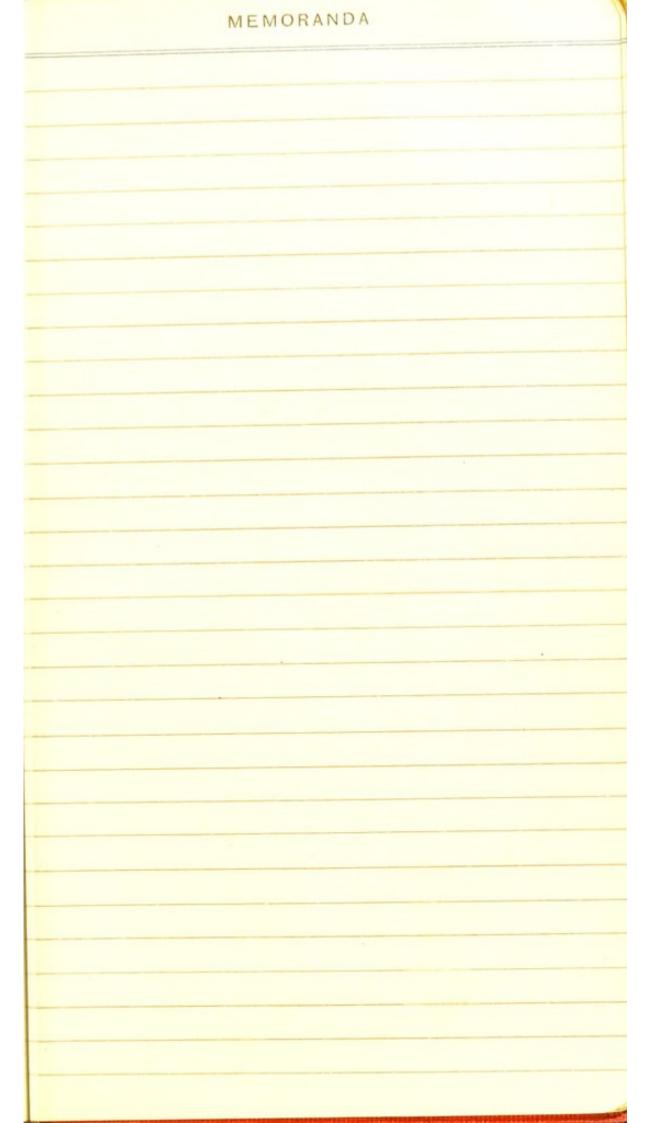
TEHERAN-E. Bonati, Pharmacie Centrale

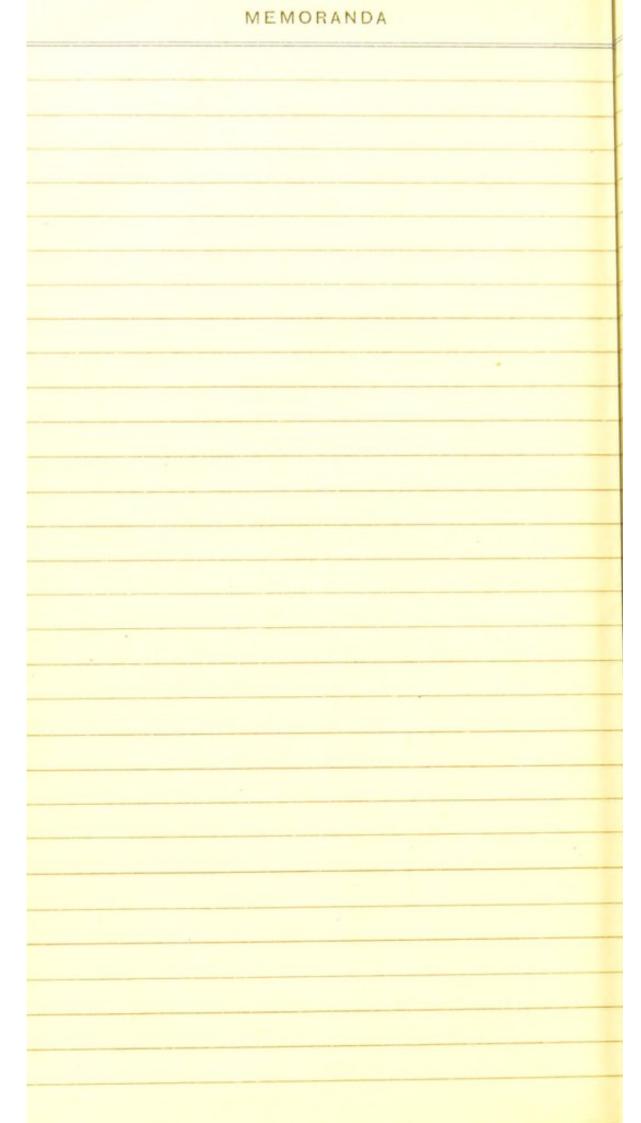
VALPARAISO-Daube & Co.

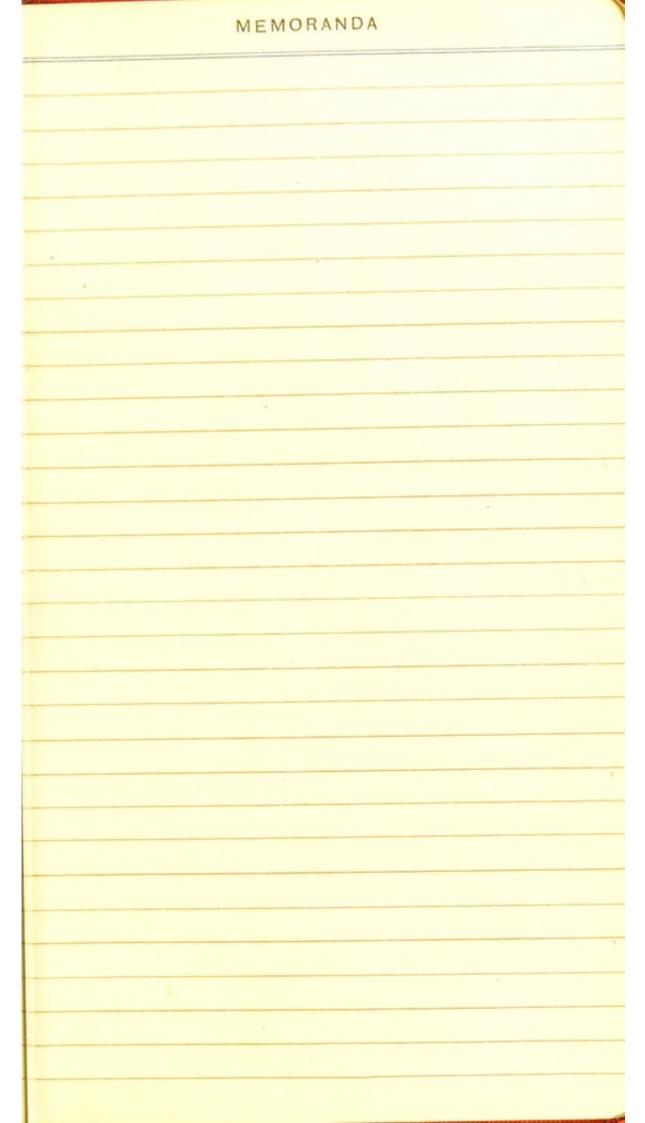
VIENNA-M. Kris

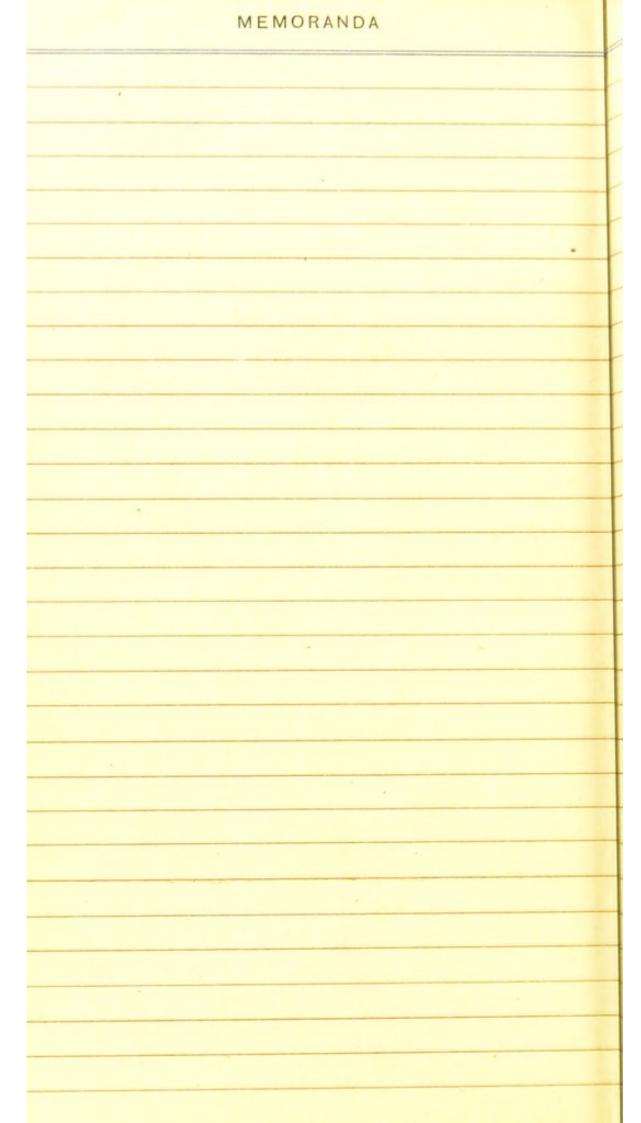
WARSAW-Richard Fürst & Co. Yоконама-North & Rae

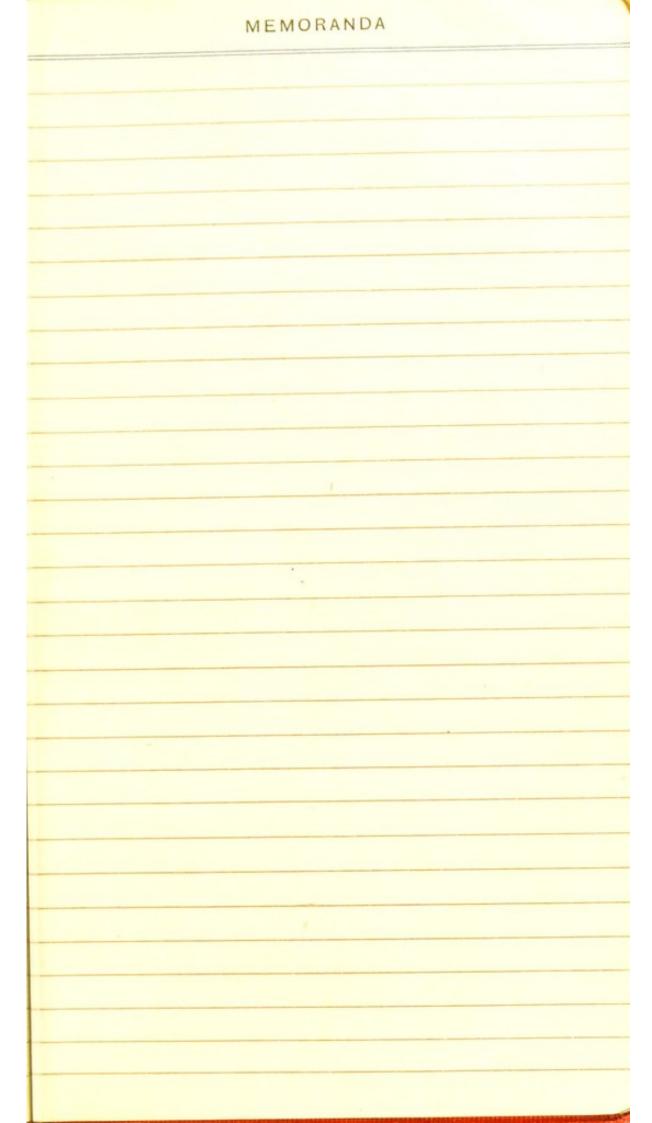
Leading pharmacists in all countries stock B. W. & Co. products

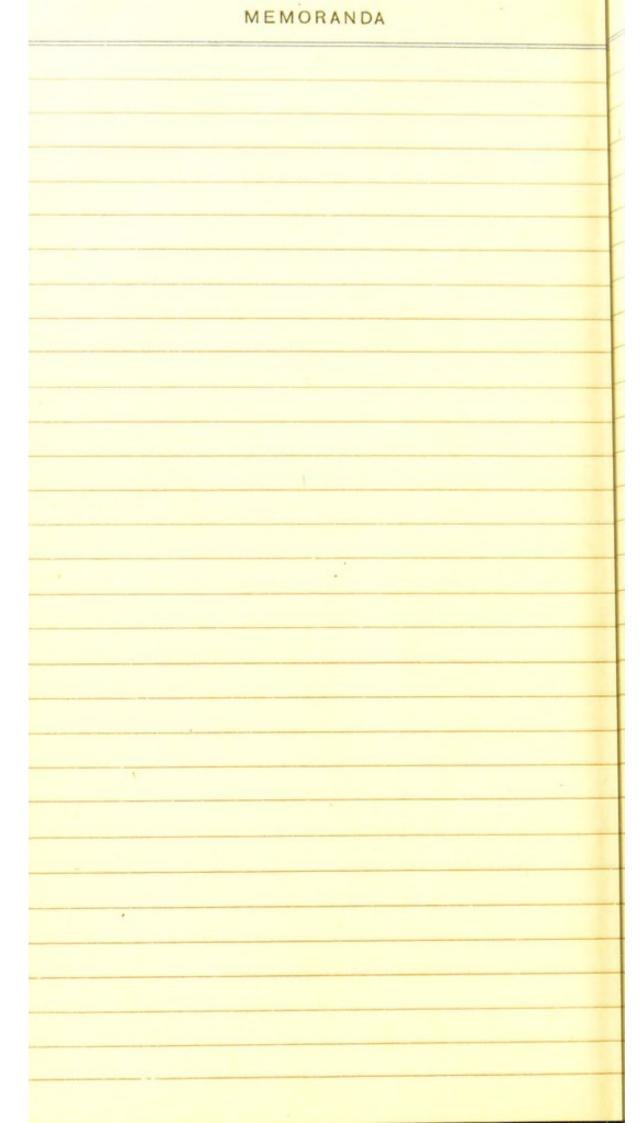


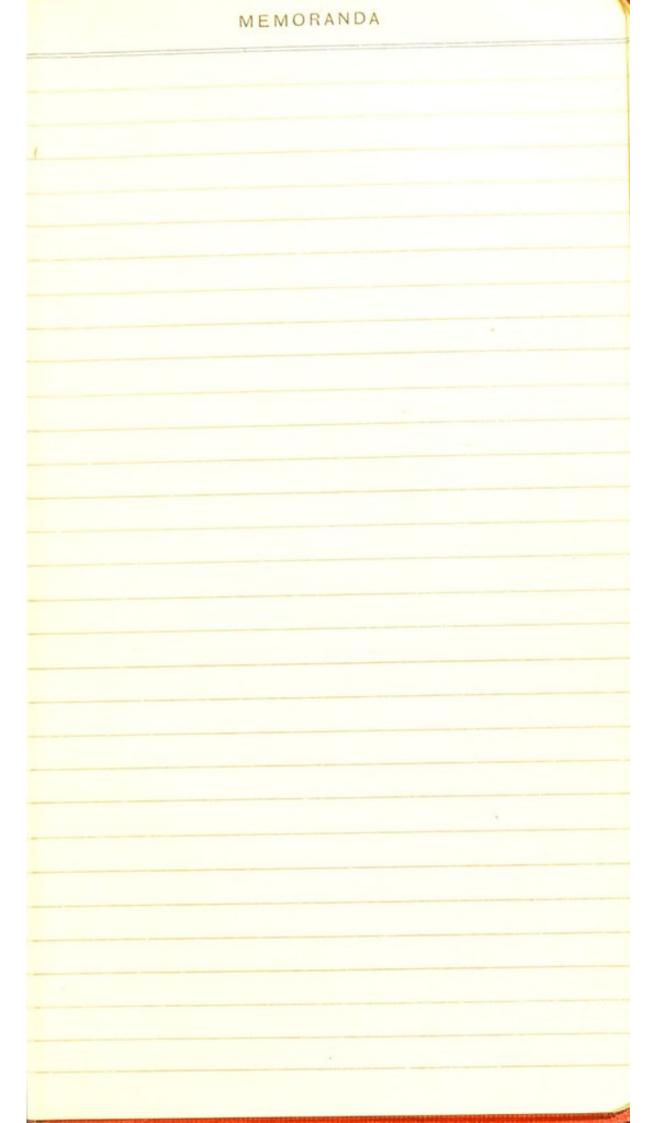


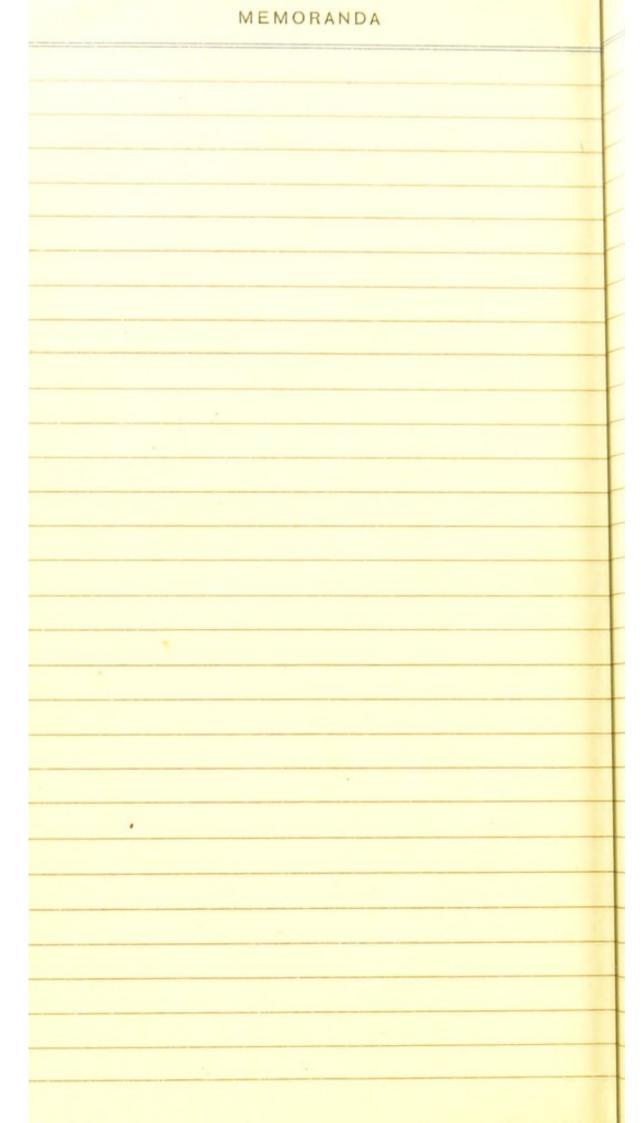


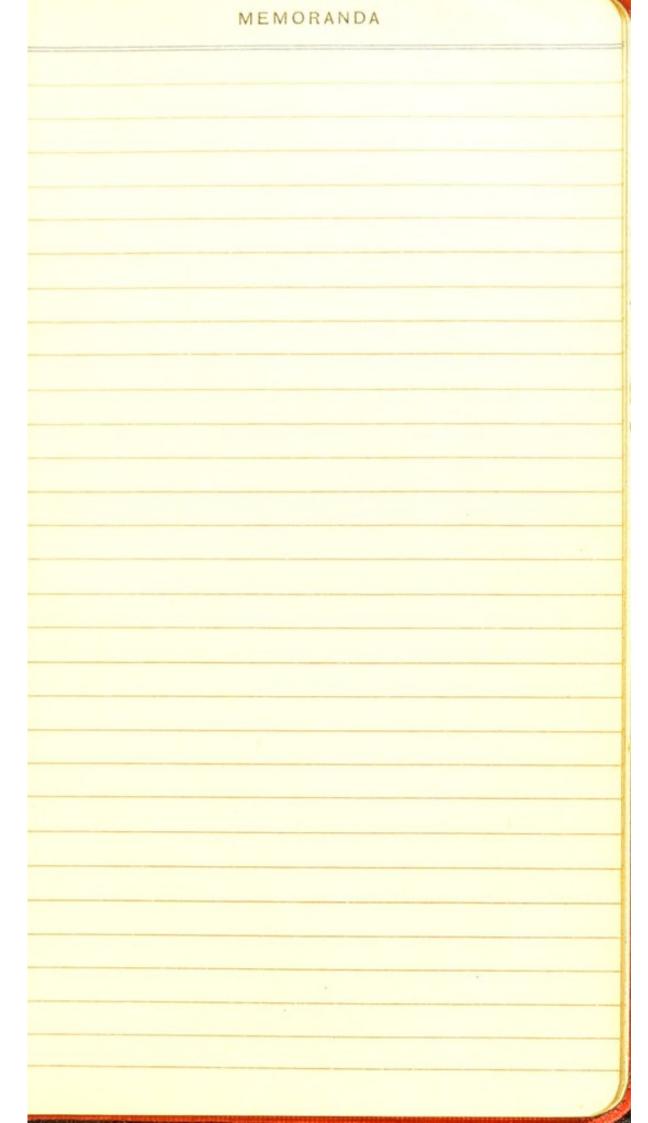


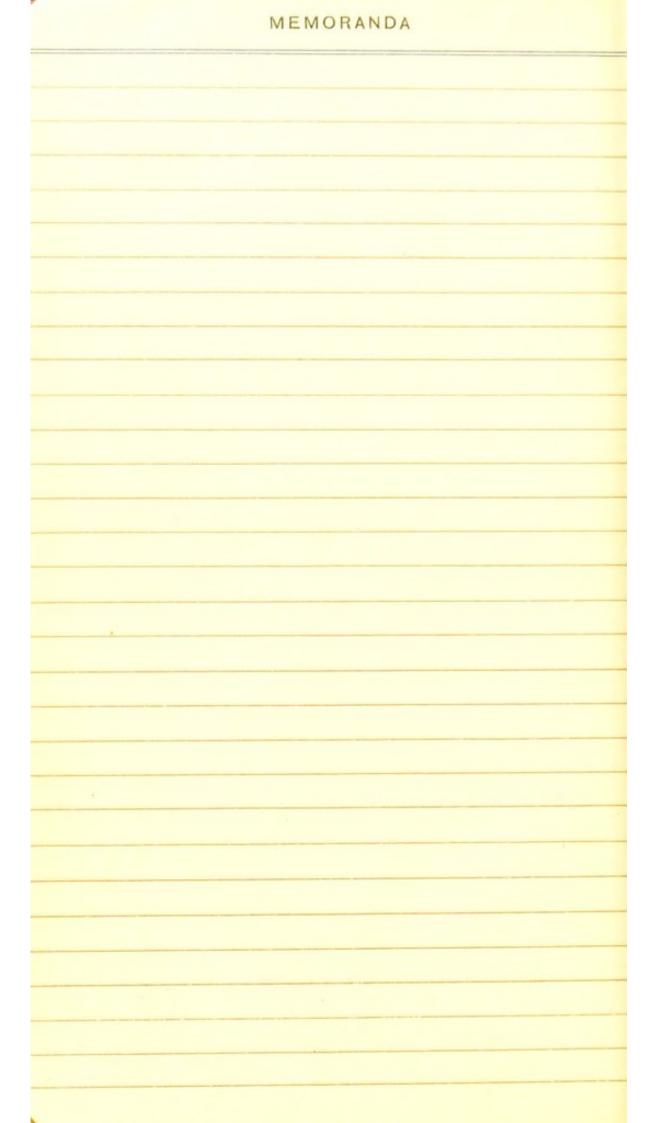


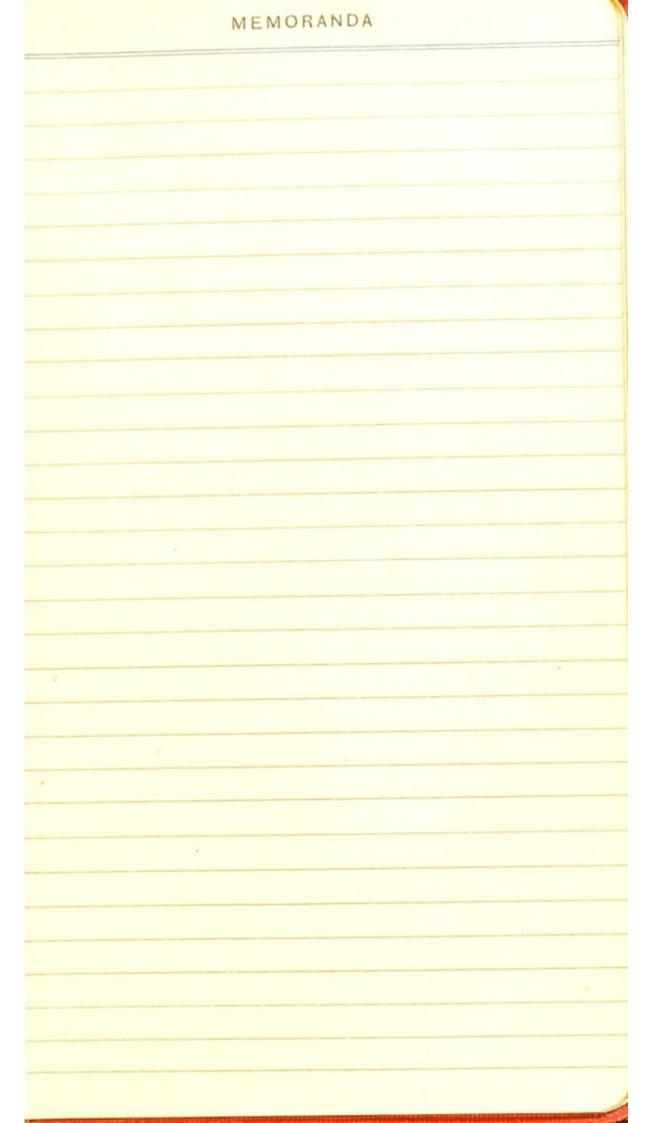


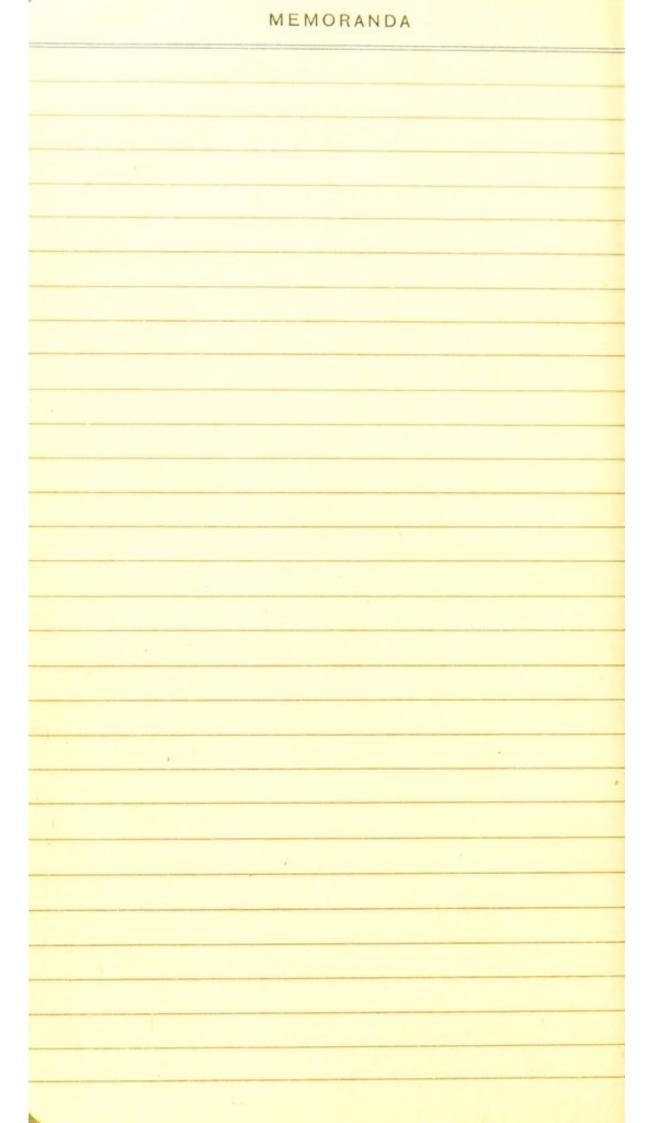


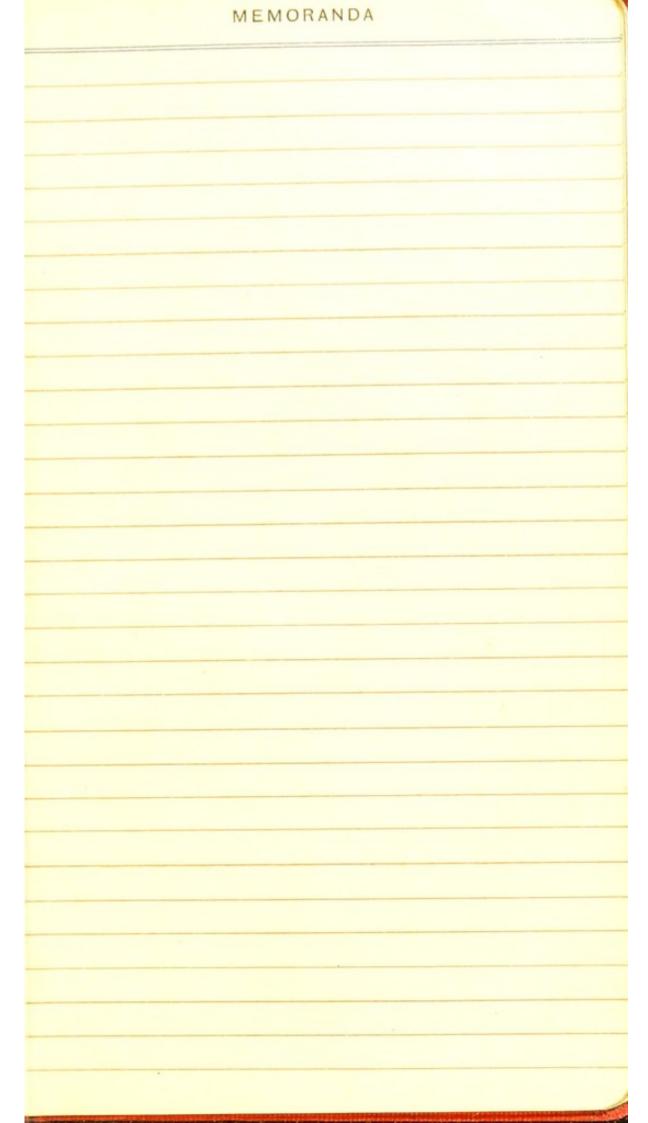


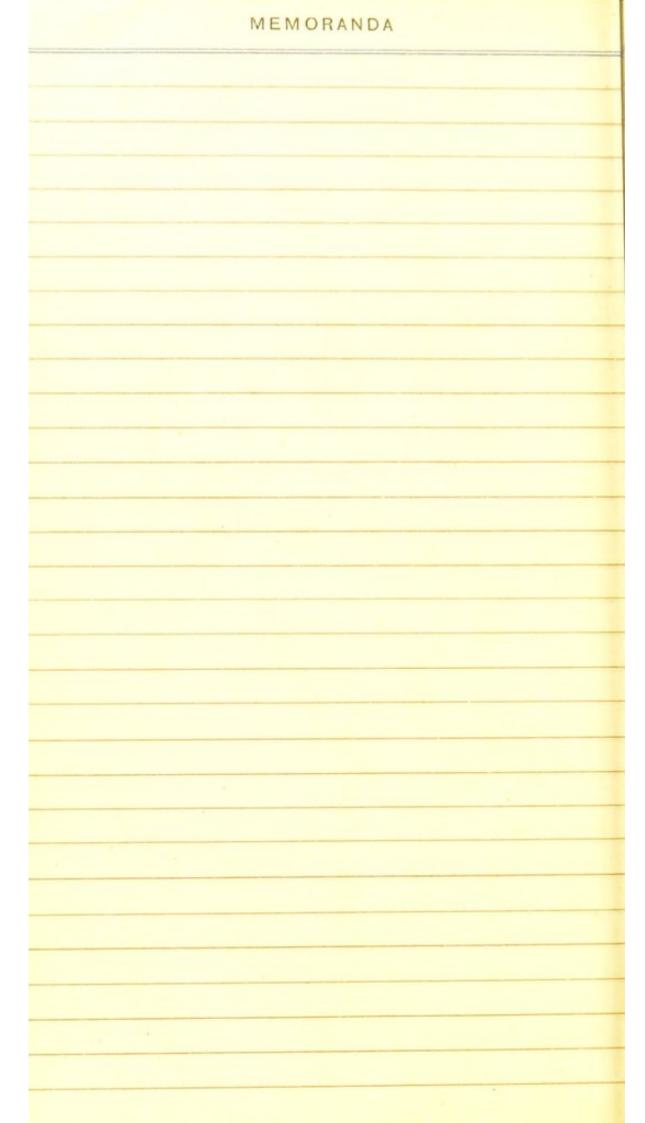


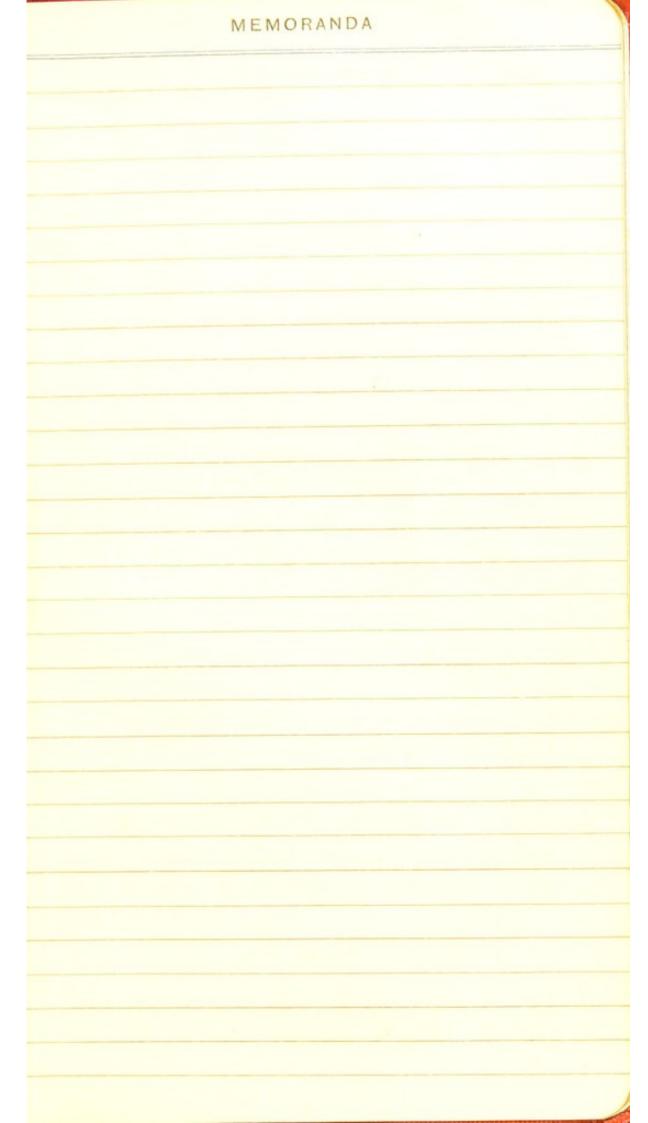


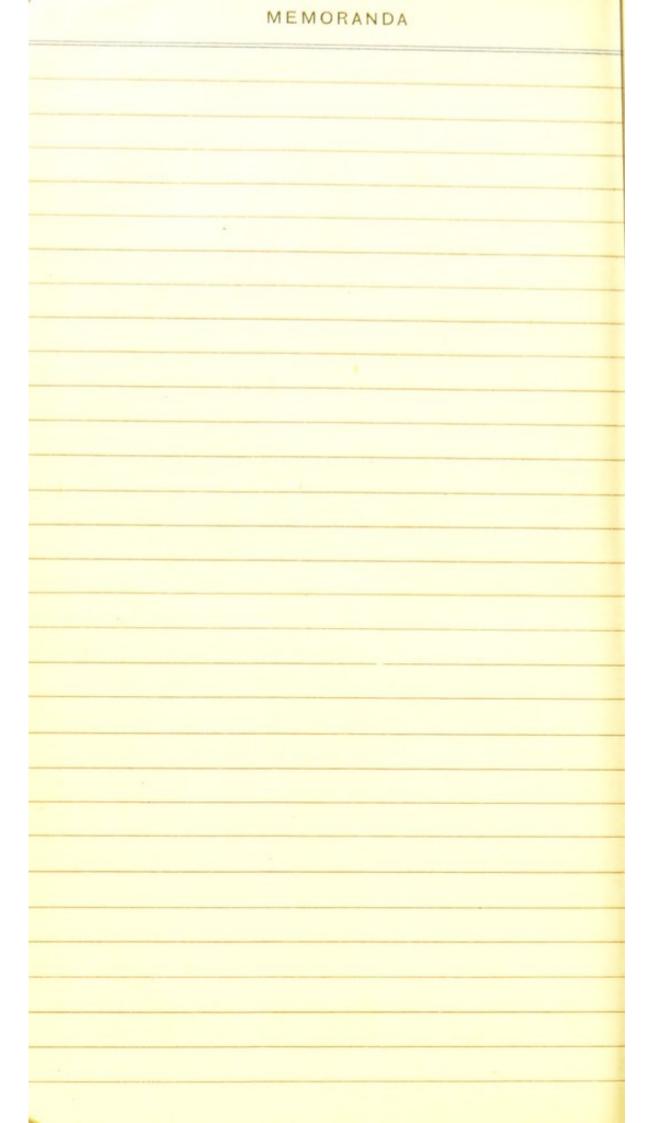














## TRADE 'EPININE' MARK

(3:4-dihydroxyphenylethylmethylamine)

### The Synthetic Hæmostatic

The result of investigations in the Laboratories of the 'Wellcome' Chemical Works, London (Eng.).

It possesses the characteristic physiological action of the extract of the supra-renal gland, being approximately 1/10 as active as the supra-renal active principle, according to measurements of their effects on the blood-pressure of the cat.

Since it is a synthetic substance forming crystalline salts, its purity can be chemically guaranteed.

(See page 197)

## THADE 'VAPOROLE' BRAND 'EPININE' THADE

Each product presents 1 c.c. of sterile solution (1 in 100) in an hermetically-sealed container, for hypodermic use.

Additional stability is thus secured.

'EPININE' is also issued in combination with Cocaine Hydrochloride, under the title 'EPICAINE.'

(See page 270)





#### BRAND PRODUCTS

#### Ergot Idealised

'ERNUTIN' presents the active therapeutic principles of ergot—Ergotoxine, 'Tyramine' and 'Ergamine'—in stable solution and in a state of chemical purity.

'ERNUTIN' never varies in strength.

'ERNUTIN' is reliable. It is successful when ordinary galenicals fail owing to the variability of the crude drug.

After normal confinements, give 30-60 minims of 'Ernutin,' by the mouth, every three hours after the completion of the third stage of labour, until firm uterine contraction is produced.

In post-partum hæmorrhage:—In ordinary cases inject, hypodermically, 5–10 minims of 'VAPOROLE' 'ERNUTIN.' In urgent cases, it should be given by intramuscular injection.

(See pages 198 and 271)





# PITUITARY (INFUNDIBULAR) EXTRACT

#### In Shock or Collapse

The reputation achieved by pituitary extract as a restorative in cases of shock or collapse following on, or occurring during surgical operations, or after parturition, etc., is based upon the successful results obtained with the 'Vaporole' product.

It produces a rapid and persistent rise of bloodpressure and slows and strengthens the heart-beat.

(See page 271)

#### TRADE 'LODAL' MARK

(6: 7-Dimethoxy-2-methyl-3: 4-dihydroisoquinolinium Chloride)

#### An important Uterine Styptic

Causes marked tonic contraction of the uterus in both pregnant and non-pregnant conditions.

Clinically, 'LODAL' has given good results in cases of uterine hæmorrhage and pain.

'Tabloid' Brand 'LODAL' presents accurate doses of one grain, sugar-coated.

(See page 249)





#### TRADE 'KEPLER' MARK

#### COD LIVER OIL WITH MALT EXTRACT

The combination of cod liver oil and malt that is digested by invalids, infants and convalescents.

It makes flesh, fat and bone when ordinary emulsions make trouble.

Its rich nutty malt flavour is much appreciated by fastidious patients.

# ABOUT THE PRODUCTION OF 'KEPLER' MALT PRODUCTS

The finest ingredients the world produces, the most intimate knowledge, the widest experience, and the most costly machinery that science has yet devised, are the factors which secure the characteristic superiority of 'Kepler' Malt Products.

(See pages 207 and 208)





#### TRADE 'NIZIN' MARK

#### A Stimulating Antiseptic

'NIZIN,' a zinc salt of sulphanilic acid, is a distinct advance on sulphate and other salts of zinc hitherto in use.

In acute gonorrhœa, injections have proved very successful.

Solutions of the strengths recommended for use are non-irritating and non-toxic.

'NIZIN' is also used with success in conjunctivitis.

'Soloid' 'Nizin' presents the salt in accurate amounts and readily soluble.

(See pages 210 and 227)

#### TRADE 'SOLOID' BRAND

#### URINE TEST CASE, No. 510

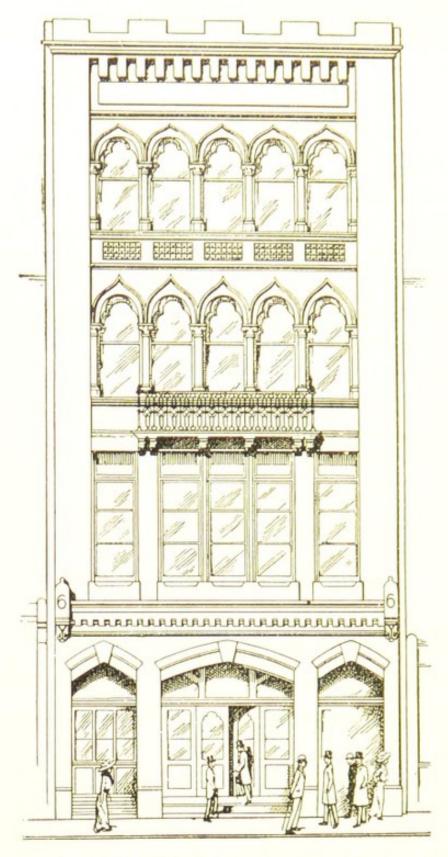
A complete outfit of apparatus and reagents in a nickel-plated metal case which can be carried in the pocket, if necessary.

Ideal for consulting-room, sick-room or laboratory use.

Facilitates accurate tests for sugar, albumin, etc. Obviates mess and waste. Each item of the contents is of the finest quality. The 'Soloid' brand reagents do not deteriorate.

(See page 177)





WELLCOME CHEMICAL RESEARCH LABORATORIES
KING STREET, LONDON (ENG.)

This INSTITUTION is conducted separately from the business of BURROUGHS WELLCOME & CO., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm.

#### AWARDS

#### CONFERRED UPON THE

### WELLCOME CHEMICAL RESEARCH LABORATORIES

#### AT INTERNATIONAL EXHIBITIONS

ST. LOUIS ONE GRAND PRIZE

1904 THREE GOLD MEDALS

LIÉGE ONE GRAND PRIZE

1905 ONE DIPLOMA OF HONOUR

TWO GOLD MEDALS

MILAN ONE GRAND PRIZE
1906

LONDON TWO GRAND PRIZES
(Franco-British)
1908

LONDON ONE GRAND PRIZE
(Japan-British)
1910

BRUSSELS THREE GRAND PRIZES

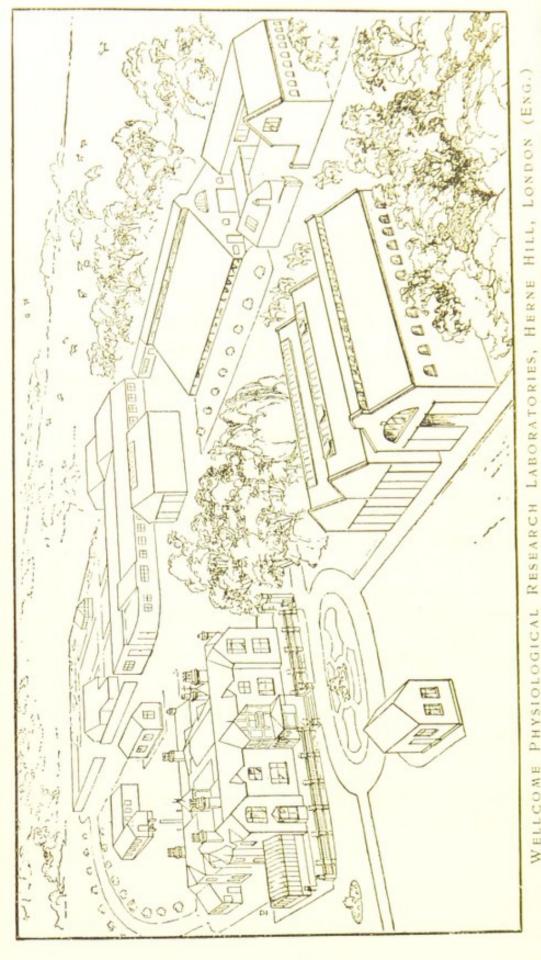
1910 ONE DIPLOMA OF HONOUR

TURIN THREE GRAND PRIZES

1911 ONE DIPLOMA OF HONOUR

FOR

CHEMICAL AND PHARMACOGNOSTICAL RESEARCH
ETC., ETC.



This INSTITUTION is conducted separately from the business of BURROUGHS WELLCOME & CO., and is under distinct direction, although in the Laboratories a large amount of important scientific work is carried out for the firm. WELLCOME PHYSIOLOGICAL RESEARCH

#### AWARDS

#### CONFERRED UPON THE

#### WELLCOME PHYSIOLOGICAL RESEARCH LABORATORIES

#### AT INTERNATIONAL EXHIBITIONS

ST. LOUIS ONE GRAND PRIZE

1904 ONE GOLD MEDAL

LIÉGE ONE GRAND PRIZE

1905 TWO GOLD MEDALS

MILAN ONE GRAND PRIZE

1906

LONDON TWO GRAND PRIZES

(Franco-British)

LONDON ONE GRAND PRIZE

(Japan-British)

1910

BRUSSELS FOUR GRAND PRIZES

1910

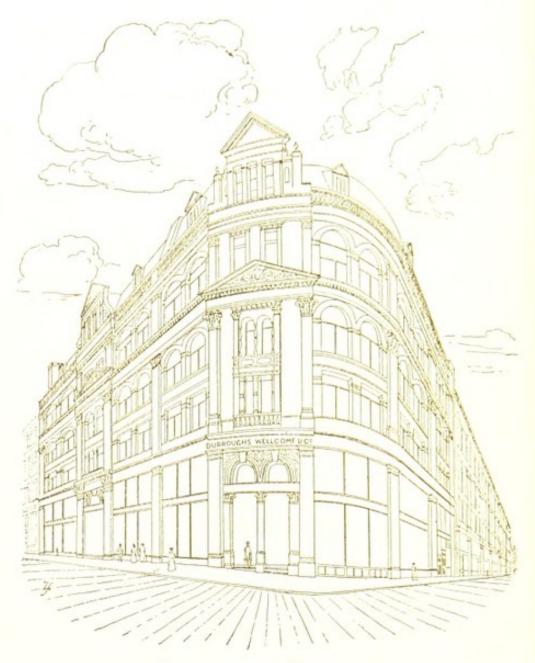
TURIN THREE GRAND PRIZES

1911

FOR

PHYSIOLOGICAL RESEARCH AND PREPARATIONS

ETC., ETC.



BURROUGHS WELLCOME & CO.'S CHIEF OFFICES
LONDON (ENG.)

Corner of Holborn Viaduct and Snow Hill
facing Holborn Viaduct Station

# TYPICAL AWARDS

# AT INTERNATIONAL EXHIBITIONS

CONFERRED UPON BURROUGHS WELLCOME & Co.

FOR THE SCIENTIFIC EXCELLENCE

OF THE FIRM'S PRODUCTS

ST. LOUIS 1904	THREE GRAND PRIZES  THREE GOLD MEDALS
L1ÉGE 1905	SIX GRAND PRIZES  THREE DIPLOMAS OF HONOUR  THREE GOLD MEDALS
LONDON (Franco-British) 1908	SEVEN GRAND PRIZES ONE DIPLOMA OF HONOUR TWO GOLD MEDALS
SEATTLE (Alaska-Yukon) 1909	ONE GRAND PRIZE
LONDON (Japan-British) 1910	FIVE GRAND PRIZES  ONE GOLD MEDAL
BRUSSELS 1910	EIGHT GRAND PRIZES  THREE DIPLOMAS OF HONOUR  ONE GOLD MEDAL
BUENOS AIRES 1910	ONE GRAND PRIZE
LONDON (Festival of Empire) 1911	TWO GRAND PRIZES  ONE GOLD MEDAL
TURIN	EIGHT GRAND PRIZES

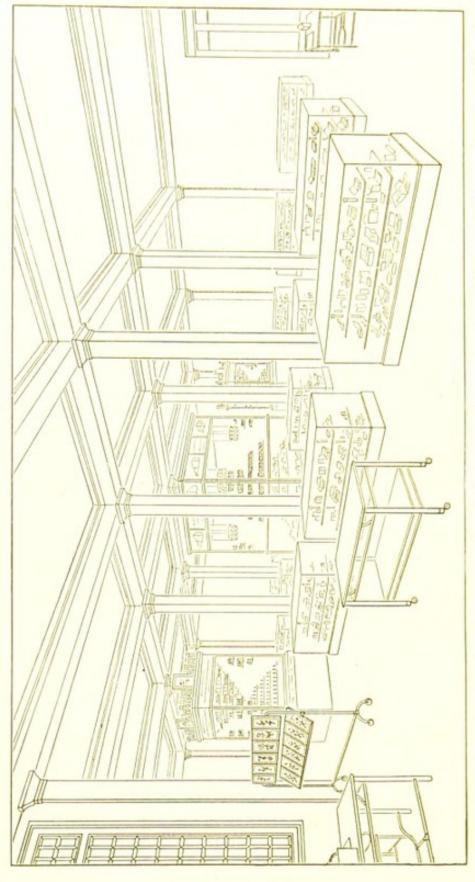
MAKING IN ALL

TWO DIPLOMAS OF HONOUR

THREE GOLD MEDALS

1911

MORE THAN 260 HIGHEST AWARDS



Right Sectional View of B. W. & Co. Exhibition Room at 54, Wigmore Street, London (Eng.) Overseas Members of the Medical Profession visiting England are specially invited to call at our London Exhibition Room, where they will find much to interest them



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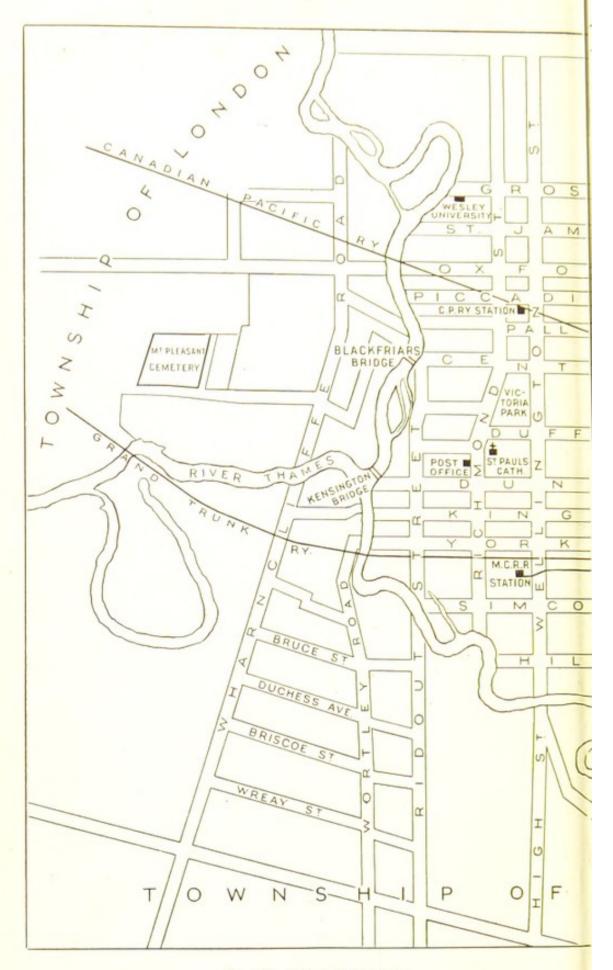
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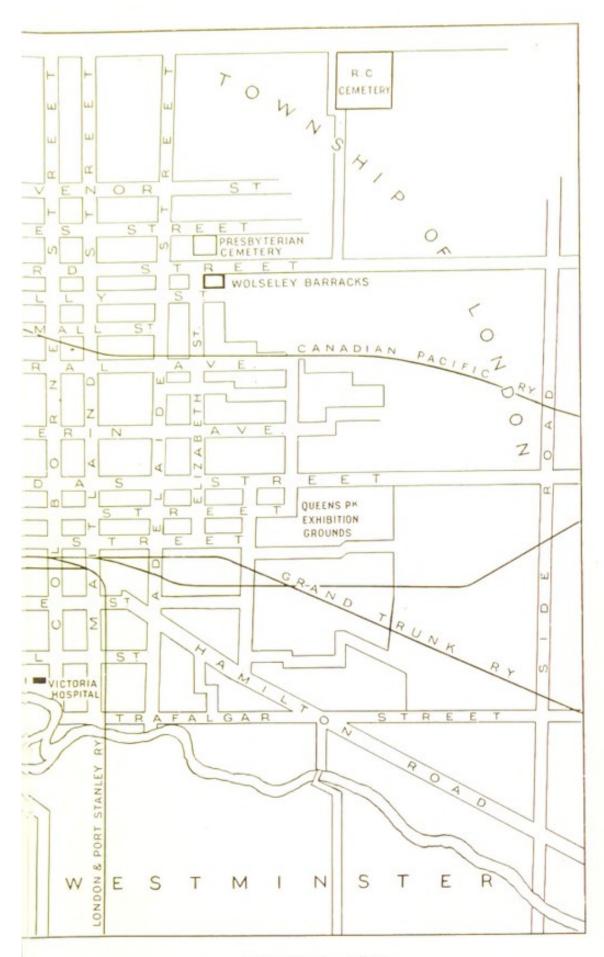
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PLAN OF LONDON



ONTARIO, 1913

