PRACTICAL USES OF VITAL STATISTICS.

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VITAL statistics owe their existence to the commercial uses that have been made of them. In fact, vital statistics were called into being by the need of the practical information that they give, and their development into a separate science must be attributed to the increasing demand for data of the lives of the people for commercial, legal or other practical purposes.

While the greatest strides in the advance of vital statistics as a science have been made in recent years, their origin may be traced to centuries before Christ. Indeed, Herodotus tells us of a census of Egypt taken about 3050 B. C. for the purpose of making arrangements for the construction of the Pyramids. Elsewhere, this same author refers to a second census, taken about 1400 B. C. in Egypt by Rameses II, for the purpose of reapportioning all the land of Egypt among his subjects. The Bible tells us that Moses counted the tribes of Israel to determine their fighting strength and that David, about 1018 B. C., took a census for the same purpose. There is a record of a census taken in China about 1200 B. C., when data of the provinces was collected by Uking.

The first censuses made at regular intervals, of which we have a record, were taken in Rome after Servius Tullius. These were the most accurate enumerations of the population made in early times. About this period too, the residents of Rome were required to register births and deaths at certain temples in the city. It is probable that the purpose of this registration was to enable the civil authorities to determine the population of the city during intercensal years, as well as to have accurate data of the births and deaths occurring within the city, for legal and military purposes. It is even within the realm of possibility that the causes of death were studied from a sanitary viewpoint.

During the Middle Ages, enumerations were made from time to time, always with some specific purpose in view, which usually had to do with determining the fighting strength or the wealth of the nation taking the census. Particular mention is made in history of censuses taken by Charlemagne, William the Conqueror, Emperor Frederick II of Germany, and Edward II of England.

Sweden, about the middle of the seventeenth century, made it compulsory for the clergy to record not only the births, marriages and deaths, but also the populations of their parishes. The specific purpose of this registration is not disclosed. In Quebec a periodical census was established in 1665 and was continued until 1754. This was probably the first modern census.

The decennial census, which is an American institution, was brought into being by the provision in the Constitution for representation in Congress. The first one was taken in 1790 and was probably the first census in the broad sense of the word. The following is a quotation from the Encyclopedia Britannica:

"Sweden, Norway, and the United States are the only countries with any claim to have taken the first modern census, as distinguished from a register of taxpayers, etc. The lineal descendants of the old Roman census and the innovation seems to be due to the United States. If so, the first modern census was the American census of 1790."
In Great Britain, the first census was taken about 1801. The Encyclopedia Britannica states that:

"It was thought desirable to possess the means of judging from time to time the relations between an increasing population and the means of subsistence."

The same authority attributes to the essays of Malthus the desire for this information.

A triennial census was established in Germany in 1888 when it became necessary to have trustworthy enumerations of the population in order that the proceeds of the tariff might be justly divided according to the population.

It is, therefore, evident that the first vital statistics of which we have a record were enumerations of the population made for some practical purpose, e.g., to determine the number of males available for military duty, to estimate the budget that could be collected through taxes, etc., etc. Save in Rome, after the time of Servius Tullius, we find no record of compulsory registration of births and deaths until rather recent times. In fact, today, in many parts of the United States, there is not an adequate system of registration of deaths, births and marriages.

Before the establishment by the federal bureau of the census of the registration area of births and deaths, the only means that the federal government had of securing mortality statistics was by including in each census an enumeration of the deaths that occurred during the previous year. I quote as follows from the published report of the ninth census, 1870:

"The dimensions attained by the life insurance interests within the past few years make it peculiarly a matter of regret at the present time that the census should not afford the data for determining with absolute precision and certainty the death-rate of the country, whether in the aggregate or by classes of population. This can never be done without a national scheme of registration, stringently enforced by penalties."

The first record of deaths in the City of New York is a list of persons who died of yellow fever in 1795, compiled for the purpose of sanitary investigation. In 1798 the deaths were recorded in a more or less careless manner because permits for burial were not issued by the city authorities, the certificate of death issued by the physician in attendance, being presented by the undertaker to the keeper of the cemetery at the time of burial. The cemetery superintendents were charged with the duty of returning the certificates to the City Inspector's Department. That they discharged this duty in a rather unsatisfactory manner can be gleaned from an examination of the old records. Later, permits for burial were issued by the City Inspector but little if any improvement in registration of deaths was effected by this procedure as is evidenced in the following extract from the report of the Metropolitan Board of Health of 1890:

"The registration of deaths in New York City dates back to the year 1808. Cemetery records, and the returns of certificates of death through the cemetery-keeper or sexton, until within the last twenty-three years, supplied the information of deaths to the City Inspector. And until the adoption of new regulations, last spring, serious irregularities prevailed. The frequent application for transcripts of death-records, which had never been registered, led to inquiries that confirmed and solved the question of incompleteness in the public registry."

"The Metropolitan Board of Health has heartily sustained its Bureau of Vital Statistics in maintaining that "considered physically, the main objects of a correct civil registration of births, deaths and marriages, is to aid in disclosing the causes of disease; that, considered legally, the object
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is to provide means of tracing descent and proving personal identity; and that, considered politically, it is to assist the government in arriving at correct conclusions with regard to measures of internal economy, employment, etc."

The authorities, realizing that such slipshod methods afforded ready opportunity of concealing homicide and suicide, changed the procedure so that permits for the burial of human remains would be issued only by the Registrar of Vital Statistics or his duly authorized representative, upon the presentation of a proper certificate of death.

We quote from the report of 1866 as follows:

"In no other city in the world did greater need of such systematic and rigid rules exist. I am happy to state that no opposition has been shown to this rigorous system, though until the Metropolitan Sanitary Board ordered it into operation, the City Inspector's permits were to be had for the asking—ready signed and in quantity—at the shops of various undertakers and medicine venders in the different sections of New York City. Such a premium on the daily violations of the statute relating to interments and the sanctity of human remains was not to be tolerated; the Board of Health and its Bureau of Vital Statistics could not allow that vicious system to continue for an hour. The metropolitan police quickly gathered up and brought to headquarters all those unguarded burial permits. There were other and very gross evils connected with the custody and registration of the dead, which were promptly corrected."

The demands for transcripts of death certificates for court proceedings and for the collection of life insurance, also for the settling of estates, undoubtedly was an important factor in improving the registration of deaths. The first quotation from the report of 1866 refers to the influence upon registration by demands for transcripts.

The registration of births and marriages became compulsory in 1847, but as no penalty was provided for violation of the law, it soon fell into disuse. The necessity of providing a penalty in order that the law might successfully accomplish the purpose for which it was enacted became apparent, and after a period of several years the law was amended providing an adequate penalty. This amendment became effective on July 1, 1868, and after that the births and marriages were reported with a fair degree of regularity. We can assume that the need of complete registration of births and marriages, as well as deaths, was realized at least by the officers of the Board of Health because frequent reference is made to the matter in their reports. The following is an example of such reference:

"The state and the municipality open their account current and ledgers of the life, lineage, death and the causes of death of the people, in order that the laws of healthy existence and social welfare may be elucidated, while public registration is made of three great landmarks which nature has placed in the pathway of life. And if, in the transactions of trade and transfer of lands and estate, the civil government justly demands the formalities of deeds, of title-proofs, covenants and solemn oaths, and the literal registration of them, how much more and with what exactions shall the requirements of society be enjoined in regard to its care, study, and public records of man in his birth and lineage, his family, his offspring, and his death."

The biggest impetus was given to the registration of births when the Department of Education found itself unable to accommodate all the children that clamored for admission to school, and in order to reduce the number as far as possible, made a ruling that children would not be admitted to school until they had presented a birth certificate proving that they were of school age. Numerous other demands for tran-
scripts of birth, which are outlined in the
following paragraphs, awakened the public
to the necessity of having their children's
births registered and created public opinion
to uphold the recommendation of the Regis-
trar, Dr. William H. Guilfoyl, that all physi-
cians and midwives violating the law be
vigorously prosecuted. The adoption of
this recommendation by the Department
of Health has improved the registration of
births in the City of New York until at the
present time it is practically 100 per cent
perfect. For this enviable record Doctor
Guilfoyl deserves credit.

Among the commercial uses of statistics
in the City of New York, the following are
the most common:
1. In Surrogates’ Courts as proof of age
and legitimacy of heirs. This is probably
one of the most important legal uses of a
birth certificate. Very recently in a case
in this city in which many millions were
involved, a birth certificate of the only
heir was the most important evidence in
defending an action to break the will on
the ground that the heir was not born to
the wife of the deceased but was a foundling
which she had foisted upon him for the
purpose of securing control of his entire
estate at his death.
2. In Criminal Courts:
(a) To determine whether a minor de-
defendant shall be tried in the Children's
Court or in General Sessions.
(b) As proof of age of the complainant
in cases of rape.
(c) As proof of birth in bastardy pro-
ceedings.

An interesting example in this connec-
tion of the value of a birth certificate to a
person other than a child or its parent re-
cently came to our notice. A young for-
eigner was arrested on a charge of bastardy
and as he was unable to supply bail he was
confined to jail until his case was called.
The attorney who was assigned by the
court to defend him applied to this depart-
ment for a transcript of the record of birth
of the child in question and was pleasantly
surprised to find that the certificate showed
the child to have been born in lawful wed-
lock to the husband of the complainant.
It is needless to add that the complaint
was dismissed.
3. In Civil Court:
(a) As proof of age in order to determine
the validity of a contract entered into by
an alleged minor.
(b) To determine the liability of a parent
for the debts of a minor.
(c) In accident cases to determine the
age of persons injured when the casualty
company carrying the risk sets up the de-
fense that the injured was under the age of
persons permitted in their contract with
the defendant to operate machinery.
4. Miscellaneous Uses:
(a) To settle disputes as to age arising
out of insurance claims.
(b) As evidence upon which to correct a
record of marriage or of death, particularly
as to age.
(c) As evidence of legal age in order to
obtain a marriage license.
(d) As evidence of age in order to enlist
in the army or navy.
(e) As evidence of under age in order to
obtain the discharge from the army or navy
of boys who have enlisted without their
parents' consent.
(f) As evidence of school age to gain
admission to school.
(g) As evidence that a child is over 16
years of age and, therefore, does not re-
quire a permit to work.
(h) As evidence of the required age in
order to obtain employment certificates
between the ages of 14 and 16.
(i) As evidence of age and citizenship in
order to obtain entrance to civil service
examinations.
(j) As proof of citizenship in order to vote.
(k) As proof of citizenship in order to
obtain a passport. This last need of a
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birth certificate has been forcibly brought home to us during the present European war by accounts brought to us of hardships and dangers suffered by many Americans because of the failure of medical attendants to record their births. Indeed, several Americans arrested as spies were saved from imprisonment and possibly death only by proving their American citizenship by means of birth certificates obtained from this department. Had the physicians who attended at their births been neglectful of the important duty of reporting their births there is little doubt that their lives would have been forfeited because of such negligence.

(1) The Widows' and Orphans' Pension Law, which has just been enacted, has created a new demand for certificates of birth.

3. In health administration, birth returns, in addition to their statistical value, are almost indispensable in infant welfare work since they enable the health officer to get in touch with the mothers of infants within the first few weeks of life for the purpose of instructing and aiding her in the care of her child. Firms engaged in the manufacture of maternity supplies and of clothing, toys, carriages, furniture, foods, and other articles for infants are alive to the opportunities that birth returns furnish of getting in touch with a clientele interested in their products. In this city the law makes the birth reports confidential and for that reason such concerns are refused access to the records. In many communities, however, the birth records are open to the public and concerns such as those we have mentioned avail themselves of the opportunities which they offer.

MARRIAGE RECORDS.

In the Supreme Court:
1. In proceedings for divorce or separation the marriage of the complainant to the defendant must be established.
2. A record of a second marriage contracted while the first is yet undissolved is prima facie evidence upon which may be granted a decree of divorce of the first marriage.
3. As evidence of a previous marriage from which the defendant has not been released by divorce or death, in proceedings to annul a subsequent marriage.

In the Criminal Court:
1. As evidence of bigamy for the purpose of prosecution.

In the Surrogate's Court:
1. As evidence of marriage in order that a widow may obtain her lawful share of her husband's estate.
2. To prove legitimacy of heirs.

Miscellaneous Uses:
1. As evidence upon which to correct the civil condition of the deceased in a record of death.
2. As evidence of a widow's right to pension, under the Widows' and Orphans' Pension Act.
3. As evidence upon which a widow may obtain compensation for the death of her husband, as provided by the Workman's Compensation Act.
4. As evidence of the right of the widow of a soldier, sailor, policeman or fireman to receive a pension from the federal or local government.
5. As evidence upon which to change the record of birth of an illegitimate child. It is customary in the Department of Health of the City of New York, when the parents of an illegitimate child subsequently marry, to permit them to file a certificate of birth of such a child, from which it shall appear that the child is legitimate—as it becomes after the marriage of its parents under the provisions of the Domestic Relations Act.

DEATHS.

Transcripts of deaths are used:
1. In the Surrogate's Court as evidence of death in probating a will.
2. As evidence of death of a parent in applications for appointment of a guardian.
3. As evidence of death of an heir.
In the Civil Court:
1. As evidence of death in accident cases.
2. To explain the non-appearance of a witness.
In the Criminal Court:
1. As evidence of death of a defendant in order to secure the discharge of the bondsman who has given bail for his appearance.
2. As evidence of death in order to have an indictment against the deceased dismissed.
3. As evidence of death in prosecution for homicide.
Miscellaneous Uses:
1. As evidence upon which to collect insurance upon the life of the deceased.
2. As evidence of the cause of death in order to collect accident insurance on the life of the deceased.
3. As evidence of death of a beneficiary in applications to change the beneficiary of an insurance policy.
4. As evidence upon which to collect bank deposits of deceased persons.
5. As evidence of death of a subject ordered to report for military duty by those foreign governments which compel their male subjects to perform military duty.
6. As evidence of death in applications to the police department to remove the picture of the deceased from the Rogues’ Gallery.
7. As evidence of death to be submitted to a city or other governmental department which has been paying a pension to the deceased.
8. As evidence of death to be submitted to the Workmen’s Compensation Commission.
9. As evidence of death of civil or other pensioners in order that their widows or dependents may be granted one in its stead.
10. As evidence upon which to secure a widow’s and orphan’s pension.
11. As evidence of death of an illegitimate child in order that the father may be released from further payments for its care.

We have considered the past and present commercial uses of vital statistics, let us now see to what further uses the statistics of the lives of our people may be put.

In discussing the uses of statistics of mortality, the fact that life insurance, as a business, is absolutely dependent upon mortality statistics was not mentioned because the mortality experience upon which the life insurance companies construct their life tables and compute their charges are the mortality rates of their own clientele. But, if life insurance companies can amass fortunes for their stockholders, erect palatial buildings, pay large salaries to their officers and commissions to their solicitors, engage in social work, maintain permanent health exhibits, and engage in divers other activities requiring the expenditure of vast sums, by making practical and profitable use of the statistics they accumulate, why cannot cities and states likewise make practical use of their statistics and insure their residents against illness, accident and death. Not only should it be possible to do it at a saving to the public, but it should be possible to make sufficient profit to maintain the Health and Charity departments. At this point let us digress in order to express it as our conviction that these two departments should be consolidated as a Department of Public Health and the term “Charity Department” eliminated, for in the light of our present ideas it cannot be considered charity for a community to care for its ill, its aged and its poor, for if the social and economic life of our communities were properly organized, there would be none who could not care for himself or herself in illness and old age. Nor should it be
considered charity to provide for orphans and foundlings. On the contrary, they are among the most valuable assets of any community and it is but the wisest and best paying investment to see to it that their upbringing and education is such that they will mature into healthy and, therefore, useful citizens.

The age of individual effort is past and we have entered upon one of cooperation; therefore, the care of our orphans, our ill, our aged and our poor might well be undertaken upon a cooperative plan until we have realized that Utopia where there will be no dependents.

Before proceeding to a consideration of any plan, let us first rid our minds of the old-fashioned notion that the function of a health department is or can be limited, now or in the future, to detecting and isolating persons ill of contagious diseases, correcting sanitary violations, or similar activities that formerly were thought to comprise the duties of an efficient health department.

Today we know that the salary a man receives has the most important bearing upon his own and his family's health, both mental and physical. His income determines the character of the premises in which they live, the quantity and quality of their food, the sufficiency or insufficiency of their clothing, the enjoyment of wholesome pleasures, and a hundred other factors that have a most direct bearing upon their good health and, consequently, upon their resistance to disease and their efficiency as workers. Likewise, the worker's earnings determine whether he shall be able to accumulate sufficient savings to care for himself in the event of illness and to provide for his old age. It is, therefore, apparent even to the casual observer that all these social and economic factors have a most direct bearing upon public health and are, therefore, matters that should be under the jurisdiction and control of the Department of Health.

The following conditions are indispensable to public health: a living wage; clean and well ventilated rooms; sufficient, wholesome food, properly prepared; adequate clothing; opportunities for relaxation in the form of wholesome amusements; prompt and efficient medical care and nursing during illness; sufficient revenue during illness, whether from accident or disease, to maintain the home.

Therefore, the major functions of a Department of Public Health should be:

First: To assist in securing a living wage for the worker.

1. By improving his health, which, of necessity, will increase his efficiency and, therefore, enlarge his earning capacity.

2. By urging educational authorities to provide practical courses of study that will develop the bent of each child, and, therefore, increase the productiveness of our future citizens.

3. By advocating that the worker be given his just share of the profits that his labor produces.

Second: To provide proper housing at home, in the shop and factory. This can probably be best accomplished by including within the organization of a Department of Public Health a Bureau of Housing which shall be charged with all duties relating to housing, whether tenement, dwelling, hotel, factory, office building, or department store. In this connection the idea suggests itself that taxes be reduced or eliminated on tenements renting at less than four dollars per room per month, provided they meet standard requirements, to be determined by the Department of Public Health. It might be possible in this way to induce capital to invest in model tenements, of which there is an urgent need in New York today.

Third: To care for the ill. This function can be efficiently and economically
discharged only by placing all the hospitals of the city under the direct control and supervision of the Department of Public Health. Attached to each hospital there should be an outdoor service which should include an adequate nursing force. Efficient ambulance service should also be provided and should be under the direct control and supervision of the Department of Public Health. Ambulances should serve all the hospitals of the city, each hospital being assigned a certain district. This would put an end to the present system of leaving it to the discretion of the hospital as to whether they maintain an ambulance service or not.

An important advantage of a city wide hospital bureau under the control of the Department of Public Health would be that the training school for nurses would also be city wide and the Department of Health hospitals would share in the services as well as in the teaching of the student nurses, thus increasing the practical work and training of the nurses and improving the services of the Department of Health hospitals without additional expense to the city.

Fourth: To care for orphans and foundlings. That children are foundlings or orphans makes them no less valuable to the state if they grow into manhood and womanhood, healthy in mind and body, and no less a burden if they become mental and physical defectives. Therefore, their care should be centralized in the Department of Public Health and the institutions to which they are entrusted should be located, as far as possible, outside the city limits in order that they might secure all the benefits accruing to children raised in the country.

Fifth: To provide suitable homes for the aged poor where they can be decently housed. The Farm Colony probably best solves this problem, combining as it does the advantages of outdoor life and the opportunity for making practical use of such labor as the inmates are able to perform.

Sixth: To accumulate data of the lives of the people that will enable the Department of Public Health to properly direct its activities and to compute the cost of compulsory insurance against accident, illness and death. In this connection it might be mentioned that the Department of Health of the City of New York has accumulated mortality statistics for more than one hundred years and from these statistics, together with the census enumeration of the city, the department recently constructed life tables of the citizens of the city, and is, therefore, in a position to compute life insurance rates.

It seems reasonable to suggest that the city could afford to insure its residents against illness and death at premiums lower than those offered by any insurance company in existence today and still make a profit sufficient to maintain a Department of Public Health. Such a system would impress upon everyone the value of one’s own health and life and, furthermore, it would give everyone a direct and monetary interest in the health and life of every other resident of the city, as well as in the efficient management of the Department of Public Health. It would seem that in this way the hearty aid and cooperation of everyone could be obtained.

A program such as the one here outlined may seem utopian and possibly socialistic, but just as we have advanced from that era of public health work when stagnant water was thought to be the cause of typhoid and night air the cause of malaria, so too must we come to this broader realization of our duties as a community and, accordingly, extend the functions of our Department of Public Health.