THE MILROY LECTURES ON THE INFLUENCE OF THE DWELLING UPON HEALTH.

Delivered before the Royal College of Physicians of London.

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LECTURE III.

THE EFFECTS OF CONSTRUCTION AND MISCONSTRUCTION OF DWELLINGS ON HEALTH.

DOMESTIC conveniences provide, in proximity to the dwelling, for a supply of fresh water, the removal of soiled water and excreta, and the temporary storage of refuse. In houses of flats there should be water supply on each floor, when the appliances are used in common they should not be overcrowded by users, but separate provision should be made for every two dwellings or families, and the supply should be either within the precincts of the dwelling, or situated as closely as possible to the dwelling.

By by-law now applicable to all houses one w.c. must be provided for every twelve persons, and it is generally arranged to provide the necessary w.c.'s on each floor in new flats, but this is not compulsory, although it should be so; also a w.c. must not be constructed so that it is approached directly from any room used for human habitation or as a workplace, or for preparing or storing or storing food. They must also now in all houses be constructed against an outer wall and be ventilated by windows into the open air.

The storage of refuse is a great difficulty, and it is to be regretted that it is not compulsory to provide a modicum of open space, lobby or balcony, on each floor level of dwelling houses constructed in flats, as a place of deposit for the dust receptacle and any offensive refuse as well as a means of access to the w.c. The dust receptacle requires to be simply a portable metal bin. It is indispensable that the public collection of refuse should be made daily from houses constructed in flats.

The economies practised in designing dwellings may be briefly summarised as diminishing the width, increasing the length, and lowering the height of rooms; extending the number of rooms of a dwelling along one front; reducing the number and size or abolishing open lobbies; reducing the number and size of the sculleries and washhouses, or providing none; reducing the number of waterclosets and wedging them in; increasing the number of storeys vertically, and increasing their extension laterally; multiplying the number of dwellings on each floor by means of corridors and balconies; increasing the height, depth, and breadth of the houses. Excess in these directions will require more regulation and control in the future type than has been exercised in the past.

The economies of usage, the over-crowding of rooms, dwellings, houses, domestic conveniences, and sanitary appliances, and the subletting and subdividing of houses and dwellings, will also require more supervision to prevent dereriation.

In the metropolis a house newly erected or rebuilt cannot be occupied as a dwelling-house until the sanitary authority have certified that it has a proper and sufficient supply of water. There is no reason why a certificate should not also be required as to the drainage.

[The Customs and Inland Revenue Act, 1890, Section xxvi, relating to the assessment of inhabited house duty was then alluded to.]

In new buildings "originally built" to be occupied in separate dwellings the minimum requirements should be: (1) That the buildings are constructed in conformity with the Building Acts and by-laws, especially as to damp courses, concreted basements, etc. (2) That the water supply is in conformity with them. (3) That the drainage is in accordance. (4) That the common staircase is permanently ventilated at each floor level or by through ventilation, so as to break the common air connection. (5) That each dwelling

is so arranged as to be through ventilated. (6) That each of the habitable rooms is at least 8 feet 6 inches in height and 96 square feet in area, and has a fireplace and chimney flue. (7) That there is at least one draw tap and sink with a constant supply of water thereto for every twelve occupants or less on each floor. (8) That there is at least one watercloset, properly and efficiently supplied with water, for every twelve occupants or less on each floor disconnected aërially from any dwelling in the interior of the building. (9) That on each floor a sufficient space or open lobby is provided accessible to and for the use of each family on each floor for the deposit of refuse, etc. (10) That accommodation for clothes washing is provided sufficient for each family to occupy the washhouse or appliances one day each week.

In existing buildings adapted by additional alterations to be occupied in separate dwellings, the minimum structural alterations for adaptation should require to be: (1) That the common staircase should be amply and permanently ventilated into the open air. (2) That the dwellings should be ventilated through from one front to another. (3) That the water supply should be in conformity with statute. (4) That there should be a draw-tap and sink provided on each floor for every twelve persons or less. (5) That the drainage should be in conformity with statute. (6) That clothes washing accommodation should be provided for each family at least one day a week. (7) That there should be watercloset accommodation for every twelve persons or less on each floor properly cut off aërially from the dwelling. (8) That there should be an open lobby space or balcony on each floor as a place of deposit for the dust receptacle and offensive refuse.

THE EFFECTS OF USAGE AND MISUSAGE OF DWELLINGS ON HEALTH.

[A classification of dwelling-houses according to usage was given at this point.]

Overcrowding of population implies not merely the over-crowding of cubic space in rooms, but also the diminution in the number of rooms in dwellings, and the increase in the number of dwellings in houses, the results of which are the production of overcrowding of the domestic and sanitary conveniences, and the rapid deterioration educationally in the habits and customs of tenement dwellers and the ultimate deterioration of health, especially of the health of the children. The part most affected is the middle zone of the metropolitan area, where the stream flowing in from the country meets the stream driven out from the centre. The effects are that the destitute are driven into the workhouse, the dissolute and the necessitous into the badly-built, decaying, and out-of-date areas, and the respectable workers into tenements or rooms in dwelling-houses or parts of dwelling-houses from which the former better-class occupants have been driven further out. But the process of equilibration may be quickened by improved transport, by additional buildings in the outer zone, and in the middle zone by the reconstruction of the worst of the existing houses in healthy flats, and the adaptation into flats of the floors of the best of the remaining dwelling-houses. Demolition is a remedy for the effects of over-crowding, and proper reconstruction should be the means of preventing their recurrence, and the effect of the process is a circulation and rearrangement of population.

The tenement house is generally understood to mean the ordinary vertical dwelling house constructed for the use of one family and sublet to the usage of many, and not a house constructed in flats. Of such houses there are many thousands in London, and a family likeness runs through them. The common passage and staircase and the staircase well with its foul atmosphere derived from the rooms opening into it, and the dwelling rooms with their doors ajar, destroying all privacy, in the attempt to mitigate the smokiness of the chimneys within. For the major part of the year, and especially in cooler weather, with the windows all closed and the fires all burning, the atmosphere of the whole house becomes one, and as no air can enter by the windows or chimneys, and the fire grates are all extracting, the chimneys as a consequence all smoke, much to the surprise and disbelief of the owner, who previous to subletting the house probably lived there himself. He cannot understand the competition that is going on between his tenants to secure as much as possible of the air in the staircase well, wherever it may be

drawn from; and that whereas formerly the unlighted grates supplied air to the staircase well which was distributed up and down the staircase by an upcast and downcast current to satisfy the lighted grates, those grates being now lighted and becoming also extractors, the circulation of air in the house has been destroyed.

The adoption of a maximum of cubic space as a working standard is scarcely practical, but it is practicable to advance the minimum standard to 400 cubic feet at the very least for adults; and if the lauded fresh-air treatment of tuberculosis means anything, it means a decided step in this direction, and a legal definition of overcrowding, the omission of which in our Public Health Acts is a serious flaw.

Whole streets of houses, formerly occupied by good-class families, are now occupied in separate dwellings on separate floors. Whole neighbourhoods of houses in London can be seen undergoing this process of subdivision, and their state slowly but surely falls from bad to worse. There are no powers available for dealing with the structural arrangements of separate dwellings, and the only course open is the registration of the whole house under the by-laws. There can be no doubt that the want of stair ventilation, the difficulty of obtaining water, of access to the watercloset, to scullery, and washhouse, and of refuse riddance, are causes of the ill-health of the dwellers in tenement houses, and that the unhealthy habits engendered by such conditions become permanent.

The unit of legislation has hitherto been the house, except in the case of underground dwellings. With the altered method of construction of new dwelling-houses and of usage of old, the house as a unit is insufficient to meet the requirements of separate dwellings under the existing form of laws and by-laws. The unit must be the dwelling. If dwellings in floors be compared with dwellings in flats, there is a great difference in the conditions of living. "Flats" we understand to be horizontal dwellings with all conveniences on the same level; "floors" we understand to be horizontal dwelling-rooms with all conveniences on ground or basement level.

[Houses enabling exact comparisons to be drawn between the sanitary condition of living in flats and in floors were then described.]

What chance has a respectable family of observing the decencies of life in a house where there are one or two dissolute families, when the domestic and sanitary conveniences are all used entirely in common, and the members of the respectable family, even the youngest, are continually traversing the house to and fro. If domestic and sanitary conveniences are provided on each floor, those living on that floor can at least cultivate their own good habits in their own way. What is wanted is to procure for families as much privacy as can be obtained, and to reduce the common usage to the smallest proportions possible. This is even more requisite in tenement houses, where there is no resident controller, than in blocks of artisans' dwellings.

Numerous streets in parts that were suburbs fifty years ago, with good middle-class houses, are now sublet in floors; and some such provisions as the following are required to meet the changed circumstances of living. Every part of a house hereafter let off separately as a dwelling shall have, on the same or adjoining floor, the use of the domestic and sanitary conveniences necessary to render a dwelling habitable. None of these conveniences should be situated in a habitable room, and where possible there should be an open lobby or landing on each floor. In any case the common staircase of the house must be permanently ventilated into the open air at each floor level.

With regard to water supply it was pointed out by the last Royal Commission, in reference to the metropolis and neighbourhood, "the requirements of the population are a supply of pure and wholesome water, constantly laid on, at such a pressure as will make the water reach the top storey of the highest houses, and in quantity sufficient from time to time to meet the needs of the growing number of inhabitants."¹ Very few made-down tenement houses have water supplied anywhere above the ground floor, and generally it is in the basement only, or sometimes at the end of the back yard.

[The lecturer then described methods by which tenement houses could be adapted from single houses.]

Probably the best method would be the construction of a tower at the back of the house, containing on each floor an

addition of an open lobby, scullery, and w.c., and approached from the back room on each floor; this would restrict the addition to private use.

Adaptation is undoubtedly the right and proper course to pursue in appropriate instances, and is the only means of permanently ameliorating the condition of existing tenement houses. The raising of the money for this purpose with local authorities presenting no difficulty, as under Part III of the Housing of the Working Classes Act, 1890, a local authority as well as a private company, association, or individual may not only build additional houses, but may also convert any buildings into dwelling-houses for the working classes, and may alter, enlarge, repair, and improve the same respectively.

It might be thought that if new blocks consisting of houses containing flats of two, three, and four-roomed dwellings, with conveniences attached, can be erected and be let at the same rent as, and even at less rental than, the same number of rooms in an existing house subdivided and sublet without conveniences attached to the separate dwellings, it should be possible to adapt many existing houses without necessarily increasing the rental, and to stem the downward progress of deterioration in decorative and structural condition caused by common usage, and at the same time to improve the habits and stimulate the self-respect of the inmates, to the mutual advantage of landlord and tenant. But one has to recall the circumstances in which many of the existing blocks of separate dwellings were erected in London. The Metropolitan Board of Works never built on any of the numerous sites cleared by them since 1875, but the sites were sold at a price much below open market value, because the condition was attached to the sale that working-class dwellings must be erected upon the sites, and the companies and individuals who purchased them were to that extent practically subsidised. A similar course is adopted by the London County Council as successors to the Metropolitan Board of Works; they build upon the sites cleared, but before doing so revalue the sites, with the restriction upon them only for the building of working-class dwellings, and the difference between the open market commercial value and the restricted value is wiped off, again practically subsidising the dwellings upon the site.

Furthermore, some bodies that construct dwellings have been largely endowed by private philanthropy, so that they have no interest and no sinking fund instalments to pay, and are to that extent also subsidised. Therefore, it is not to be wondered at that well-found flats are let to the working classes at the same or a lower rental than bare incommodious floors in tenement houses, and that house owners are deprived of inducement to properly adapt houses made down into tenements to the altered purposes to which they are put. At present there would appear to be only one way of counteracting the effects of subsidies or quasi-subsidies upon new buildings, and that is by subsidising or otherwise assisting pecuniarily the existing owners of houses made or to be made into tenement houses.

To summarise the question of the healthy housing of the people, our ideas must be cleared of the confusion between the march of two cognate but distinct events. The first is the pressure of urban population whereby all the requirements of healthy dwellings are compressed into the smallest limits, and the second is the making down and dilapidation of dwelling-houses and the deterioration of the health of the inmates, whereby insanitary areas and unhealthy tenement streets are created. The remedy for the first is the relief of the pressure and resistance to its injurious tendencies, the remedy for the second is the reconstruction of insanitary areas and the adaptation of tenement houses.

The relief of the pressure of population will ultimately be brought about by: (a) The improvement of the means of transport between the suburbs and urban centres; (b) the building of additional houses in the suburbs; (c) the attraction to the suburbs of the better classes and those able to live at a distance; (d) the slow but ultimate relief of the pressure in the middle zone by the movement and circulation of the population, and the gradual vacating of houses occupied by single families and subletting in separate dwellings.

The remedy for the dilapidation and deterioration will be brought about by: (a) the reconstruction of the worst areas and houses in healthy flats; (b) the adaptation of the best

streets and houses of an unhealthy "floor" type to a healthy "flat" form of construction to suit the altered mode of usage; (c) the supplementing of sanitary laws and by-laws with the dwelling as the basic unit.

REFERENCE.

¹ Final Report of the Royal Commission on Water Supply within the Limits of the Metropolitan Water Companies. 1899.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

IDIOSYNCRASY TO GELSEMIUM.

THE following case of an idiosyncrasy giving rise to somewhat alarming symptoms from an ordinary dose of a drug in very common use appears worthy of note:

A young lady, aged about 22, not at all of neurotic tendency, sent for me hurriedly. She informed me that she had always enjoyed perfect health with the exception of occasional slight attacks of facial neuralgia. She had been out driving in the afternoon with friends in a cold wind, and on returning, feeling some slight twinges of pain, sent to a chemist, and got a bottle of his "Neuralgia Mixture, or Nerve Tonic," and took one dose; afterwards having tea, and sitting down to play "patience" with others. About three-quarters of an hour later she got up complaining of her head, and saying that the pins on the cards were all "swimming," and she could not count them. She said she would go and lie down on her bed. About an hour later her friends called her, but could get no reply. Finding the door locked they got in by another, and found the patient lying back in an armchair in a semi-conscious condition. Being roused she was able to stagger to her bed, complaining of headache, extreme giddiness, of having "lost her sight," and of feeling as if drunk. When I saw her some two hours after having taken the medicine, she was on the bed complaining of the above symptoms, drowsy but easily roused, and not at all incoherent in her speech, declaring her belief that she had been poisoned by the "nerve tonic." The pupils were slightly dilated and quite insensitive to light; there was no marked diplopia, but the sensation of giddiness and swimming of sight was extreme; the upper eyelids were drooping and only raised with effort; she spoke of an indescribable feeling about the mouth as of stiffness or numbness; there were slight spasmodic quiverings of the abdominal muscles. On getting her up, her walk was very staggering. She had no heart symptoms, but the pulse was rather slow and feeble. After an emetic she began to improve, and with a good night's rest she was almost right next morning, though still complaining—eighteen hours after the medicine—of slight giddiness and "swimming" of sight.

Her memory as to what passed the previous night was very hazy. She believed that on going to her room she slept, and, on waking, got up and endeavoured to get to the chair, but staggered so much that she missed it and fell on the floor, afterwards getting into it. She distinctly affirms that she heard her friends calling and knocking, but was unable to answer them. On calling at the chemists' I was shown the formula of their stock "neuralgia mixture"; it contained only ammonium bromide, ammoniated tincture of quinine, and tincture of gelsemium m x , B.P. It is clear that the symptoms were due to the gelsemium, although only one dose (m x) was gone from the bottle which I took away with me, and there seems no reason to suspect careless dispensing, as I took the same dose myself from the same bottle without any symptoms. Of the stock of forty bottles, about half had been sold without any complaint. Ringer in his *Therapeutics* mentions the case of a girl aged 14 in whom m x of the tincture produced complete ptosis after each dose. Whitla in his *Treatment*, after a caution as to the great difference in the susceptibility of different patients to this drug, suggests that the dose of the tincture should not exceed m xx to begin with. I am unable to find more in the books which I have at hand as to this; but the extraordinary susceptibility of a patient to gelsemium appears worth noting.

Margate.

THOS. H. AMYOT, M.R.C.S., etc.

CONGENITAL MENSTRUATION, OVULATION, LACTATION, AND CONGENITAL PUBERTY.

IN reference to Dr. Jardine's case of menstruation shortly after birth,¹ will you allow me to point out that some slight sanious vaginal discharge at or about this period is of such common occurrence that it may be regarded as physiological. In cases of this kind the initial hæmorrhage is, as a rule, transitory, and is not repeated; but in many instances it has been observed to recur periodically; and in a few it has been found to merge into regular menstruation, generally with the appearance of other manifestations of precocious sexual development. Dr. C. J. Cullingworth some years ago re-

ported 32 cases of this kind, and the medical journals teem with them. These transitory hæmorrhages in newly-born children have hitherto generally been regarded as accidental occurrences; but it seems to me, after study of the subject of precocious sexual development, that they may be more correctly regarded as prototypes of the menstrual flux.

The following considerations lend support to this view: Mature Graafian follicles, corpora lutea, and recent ovarian cicatrices have several times been met with in the ovaries of newly-born children, and even prior to birth, so that congenital ovulation may be regarded as an established fact.

In my work on *Diseases of the Breast*, I have pointed out that the secretion of a small quantity of milk is of normal occurrence in the young of both sexes shortly after birth. This is accompanied by considerable formative activity in the nascent gland, and the development in it of acinous secreting tissue, so that it is a true lactation, although only transitory. It accords with these indications that infants may be born with some or all the signs of puberty, as in the following cases.

1. In an instance reported by Campbell menstruation began at birth, and continued regularly every three weeks until the child's death at the age of 4 years. The mammae and external genitalia were then like those of a pubescent woman. The necropsy showed that the internal sexual organs and the pelvis were also prematurely developed.

2. In the case of the slave girl Isabel, belonging to Don Pedro of Havana, menstruation began soon after birth, and became regularly established during the first year. At birth the mammae were largely developed, and the axillæ were hairy. When 32 months old she was 3 ft. 10 in. high, and the mammae and external genitalia were like those of a pubescent woman. Her voice was grave and sonorous.

3. In a newly-born child Lebeau found both breasts largely developed and the mons veneris was covered with hairs. Menstruation began at the age of 3 years, and continued regularly afterwards, and each breast was then the size of a large orange. When 4 years and 5 months old her height was 3 ft. 6½ ins.

This list might easily be extended, but for the present purpose it is I think sufficient.

Clifton, Bristol.

W. ROGER WILLIAMS.

TURPENTINE POISONING.

IN connection with the case recorded in the *BRITISH MEDICAL JOURNAL* of February 9th, p. 349, under the above title, the following notes of an instance in which a large quantity of turpentine was taken without ill consequence following may prove of interest. In this instance, however, only a short period elapsed before the stomach was emptied.

On November 3rd, 1900, S. B., a woman, aged 46 years, suffering from chronic melancholia with suicidal propensities, obtained access to a bottle containing half a pint of turpentine, the whole contents of which she swallowed. Fifteen minutes elapsed before medical aid was given, there being some doubt as to whether the turpentine had been swallowed or otherwise disposed of.

When the patient was seen nothing unusual was noticeable, except the presence of slight reddening of the fauces. The odour of turpentine was not perceptible in the breath or on the clothes. An œsophageal tube was at once passed, and on entering the stomach most of the turpentine was expelled. Lavage with cold water was then employed for upwards of half an hour, the smell of turpentine at the end of this time being much less pronounced than at first, but still very evident in the water. The patient was placed in bed rather exhausted, irritation of the larynx during the washing out of the stomach having caused much coughing. A few petechial spots on the forehead were present from the same cause. Three-quarters of a pint of milk was left in the stomach and an ounce of castor oil was given.

An hour later the patient complained of slight uneasiness in the epigastrium. Beyond this, which passed away in the course of a few hours, there were no subjective symptoms. The urine was passed in natural quantity; there was no trace of albumen, and with the exception of the violet odour of the urine, which, gradually becoming less perceptible, remained, for some forty-eight hours nothing abnormal was discovered.

Turpentine is said to be rapidly absorbed from the stomach. Looking at the severity of the symptoms produced by 3j to 3ij of the drug in Dr. Grapel's case, it may be assumed that in the case now recorded a very small quantity was absorbed by the stomach direct in a quarter of an hour, or had passed beyond the reach of the stomach tube to be absorbed later.

¹ *BRITISH MEDICAL JOURNAL*, February 9th, 1901, p. 340.