None of these comparisons is fair to him. He was great in his own right. Richardson calls him "one of the most original and powerful men whom medicine has ever claimed for a son." He was the first Great American Physician.

To you, Honored Representative of the Nation, I, for the moment the representative of the medical profession, present this monument. Accept it as a token of the good will of our guild toward your people, our brothers, and as an enduring memorial of one who exemplifies in an unusual degree the ancient maxim, "*Dii laboribus omnia vendunt.*"

THE DEVELOPMENTAL DEFECTS OF THE SKIN AND THEIR MALIGNANT GROWTHS.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON CUTANEOUS MEDICINE AND SURGERY, AT THE FIFTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, AT ATLANTIC CITY, JUNE 7-10, 1904.

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The term *nevus*, originally used by the laity, has been so thoroughly adopted into medical nomenclature to designate congenital blemishes of the skin that any attempt to change or even modify the meaning of the word can only result in confusion, and yet that is the present tendency in dermatology. Unna¹ says that it is questionable if *nevus linearis* will permanently maintain its place among the nevi because of the rapid development which it frequently exhibits in extrauterine life.

Postnatal development of a lesion of intrauterine origin is a striking clinical fact, but it is hardly of sufficient importance to form the basis of classification. There are few malformations of the skin which may not grow rapidly or even present themselves clinically for the first time in adult life.

French authorities use the expression *nevus tardive* to designate the late developing *nevus*. Though well understood in France, I have known this expression to cause misunderstanding in our country.

In England, Crocker² says the word *nevus* is applied only to vascular growths, and he designates neoplasms of intrauterine origin by the term "embryogenic growths."

The *Pratique Dermatologique* adopts Brocq's definition, "a *nevus* is any circumscribed deformity of the skin." Under this definition *adenoma sebaceum* is a *nevus*.

In my opinion the word *nevus* should be used simply as a term of clinical convenience to designate any mark on the skin present at birth or developing shortly after birth regardless of its histologic structure and without any attempt at scientific accuracy.

This is still the accepted use of the word in other branches of medicine and it should continue to be employed in this sense in dermatology.

Any expansion of the meaning of the word in dermatology will cause as much confusion as does the double meaning of the word *tubercle*.

As a term to designate deep-seated deposits, the word *nodule* should be employed, and we should use the expressions *nodular syphilide* and *nodular leprosy* rather than call these lesions *tubercular syphilide* and *tubercular leprosy*.

To avoid all confusion of nomenclature and misuse of the word *nevus*, it would be advantageous to employ the expression *developmental defects of the skin*, to designate all abnormal conditions of intrauterine origin which are not due to disease of the fetus.

There are two classes of cases, misplacements and anomalies of development. Under the latter class we would recognize anomalies of hair and nails, of keratinization, of pigmentation, of blood vessels, of fibrous tissue and some other forms.

THE CAUSES OF DEVELOPMENTAL DEFECTS OF THE SKIN.

The causes of defective development are probably multiple. At the present state of our knowledge there are two which should be carefully sought for in each and every case that passes our observation: heredity and the toxins of the chronic infectious diseases. "Like begets like." A peculiarity of development existing in one generation of a family is frequently observed in succeeding generations. I have observed three generations of a family in which a tuft of hair like a mane grew over the seventh cervical vertebra with no alteration of the skin developing in each instance at the time of puberty. It was present in the grandfather, in his three sons, and one of the sons having four children, in each of the children.

Peculiarities of development in lower animals may also be observed in succeeding generations. The Holland belted cattle illustrate my meaning. They are a breed of cattle which resemble the Holstein in general build, but differ in the fact that they have a broad black belt extending around the body. This black belt once established, the animals breed true, and it is regularly present in the offspring.

One of the most remarkable examples of the manner in which a developmental defect may become a racial characteristic to be found in the animal kingdom is that observed in Polish chickens, in which a greater part of the brain is an *encephalocele* contained in a vesicular-like bony protuberance of the skull. Aldroini³ mentioned these fowl in 1600, at which time the deformity does not appear to have developed into a breed characteristic.

THE TOXINS OF THE CHRONIC INFECTIOUS DISEASES.

Charrin and Gley,⁴ wishing to study the effect which the toxins of chronic infectious diseases would have on the offspring when administered to the parent animal, subjected rabbits, both male and female, to the influence of such toxins, and after a variable length of time bred the animals, sometimes mating a healthy buck with a doe which had been subjected to toxins, sometimes reversing the mating and again breeding animals both of which had passed under the influence of toxins.

The results were most striking and excited great interest in France, especially among dermatologists.

Barthelmy⁵ has tried to show that the toxins of syphilis cause various stigmata such as nevi and all kinds of imperfect development in the third generation.

Since my attention has been directed to this subject I have observed a number of cases in which this theory could be invoked, and I have seen some in which no such explanation could be offered; the subject is worthy of consideration.

3. Aldroini: Eulenburg's Real-encyclopædie der Gesamten Heilkunde, vol. xv, p. 451.

4. Charrin and Gley: Cliniques de l'Hôtel Dieu, 1897.

5. Barthelmy: Annales de Dermatologie et Syphilographie, 1897, p. 885.

1. Unna: Histopathologie, p. 1146.
2. Crocker: Diseases of the Skin, p. 932.

THE DISPLACEMENTS.

The developmental defects of the skin which are of greatest importance at the present time are those which are formed by the glandular elements of the skin and the pigmentary mole. These conditions have been more discussed by dermatologists during the past few years than almost any subject of cutaneous medicine.

According to Unna pigmentary moles are cell inclusions. Crocker describes adenoma sebaceum as a congenital overgrowth of an adenomatous character, developing from embryonic remnants in the skin. He has seen them develop in adult life and he finds them not uncommonly in the inmates of idiot asylums.

Hydradenoma eruptive is described as a nevus in the *Pratique Dermatologique* and most authors describe benign cystic epithelioma as belonging to this disease. Toeroek⁶ says that he formerly shared this opinion, but since studying sections obtained from Brooks' case he has concluded that benign cystic epithelioma should be held separate and apart from hydradenoma.

From a study of slides from Fordyce's case I agree with Toeroek. I see no reason to believe that the growth is derived from the sweat glands. The opinion originally expressed by Fordyce that the cells are derived from the rete I believe to be correct. That there should be any controversy on this subject is due to the fact that hydradenoma may clinically resemble benign cystic epithelioma very closely and that those who have studied hydradenoma microscopically have not had slides from benign cystic epithelioma for comparison.

In my opinion these conditions are one and all of them displaced cells, the displacement occurring in embryonic life, carrying with it different parts of the skin in different cases. In one case the displaced cells are chiefly derived from sebaceous glands and develop into adenoma sebaceum in postnatal life. In another case the displaced cells are mostly sweat gland epithelium which will form hydradenoma eruptive. Benign cystic epithelioma results from the displacement of cells of the rete.

The pigmentary mole, which is the most common of all displacements, contains cells which are of an embryonic type. These conditions are in every way the equivalent of dermoid cyst of the ovary, provided we agree with Marchand that dermoid cyst of the ovary is a displacement. It develops in adult life; it may contain teeth, hair or cholesterol and its walls may be lined with a membrane containing dilated sebaceous glands; one or the other accessory organs of the skin preponderating.

THE PIGMENTARY MOLE.

Clinically this malformation of the skin varies within wide limits, from the simple stain remaining unchanged throughout life, to the mammillated plaque of the covered regions of the body or the hemispherical pedunculated pea-sized tumor of the face often having a growth of a few hairs. As a rule it exhibits a gradual increase in size and frequently a decrease in pigmentation as the years go by.

Histologically they are all of the same structure, containing displaced connective tissue, displaced epithelioid cells, and displaced hairs with more or less abnormal pigmentation. The variation in the clinical symptoms is due to the amount of tissue displaced and to the preponderance of one element of displacement over another. A simple stain of the skin contains only a small cluster of epithelioid cells, while a mammillated plaque contains large perpendicular strands of epithelioid cells alternating with strands of coarse connective tissue.

The pigmentation differs widely in different cases; it is like that of the negro, present in the form of fine grains in the deep layers of the rete, but it has an uneven distribution.

THE EPITHELIOID CELLS OF THE PIGMENTARY MOLE.

After ten years of discussion regarding the nature of these cells we may state, that the older opinions that they are the cells of lymphatic channels, endothelial cells, etc., have now few supporters and that it is the opinion of most investigators that they are either embryonic connective tissue cells, as Riehl and Rieche believe, or else they are epithelium cells, as Unna and his followers, who are in the majority, believe.

According to Unna's theory the rete pegs grow downward into the corium about as they do in a wart, and clusters of cells become detached from their ends and undergo a metaplasia by which they lose their prickles and revert to the embryonic type, and furthermore, this cleavage of cells in clusters and metaplasia occurs not only in embryo, but may even be seen occurring in infancy. Just as drops of water drip from the point of an icicle so do these clusters of cells become more slowly detached from the ends of the rete pegs.

That clusters of cells actually become detached from the rete pegs he determined by serial sections, and his findings have been substantiated by Gilchrist, Schueber, Abesser and others, while on the other hand Ribbert and Rieche⁷ find that no separation occurs and they believe that the peculiar figures of the rete pegs which at first view appear to be clusters of cells detached, undetached and in process of being detached from the rete pegs, are produced by oblique sectioning and by outward pressure. Rieche finds that the rete figures occur in nevi of adult life even in the sixtieth year, and he finds no separation in serial sections.

Abesser,⁸ who accepts Unna's theory, also finds them in adult life. I have found them as late as in the fortieth year of life, and I agree with Rieche that no detachment of cells occurs.

Unna has observed these same figures in certain cases of fibroma molluscum and he argues that their presence shows that such cases are really cases of nevus. Whitfield⁹ finds them in nevocarcinoma even more frequently than in the nevus.

A microscopic finding is one thing, an interpretation of the finding is another thing, and these two things are to be considered separate. Before any attempt is made to elucidate a microscopic observation, every possibility of diagnosis should be considered and that has not been done in the study of this condition.

Unna's theory depends entirely on the interpretation of the figures of the rete pegs, and as I am convinced that no separation occurs, I maintain that his theory should be discarded.

There is no doubt in my mind that the displacement occurred and was completed in early embryonic life. In other words, the pigmentary mole is to be explained by the Cohnheim theory and not by the Unna theory.

Whether the displaced cells are epithelium or connective tissue can not be determined at the present state of our knowledge. Unna gives the reasons for believing that they are epithelium and Rieche the reasons for believing that they are connective tissue.

If Kromayer's¹⁰ theory of desmiphasia is accepted as

7. Rieche: *Archiv für Dermatologie und Syphilis*, vol. lxx, p. 65.

8. Abesser: *Virchow's Archiv*, 1901, vol. clxvi, p. 66.

9. Whitfield: *British Journal of Dermatology*, 1900, p. 267.

10. Kromayer: *Archiv für Dermatologie und Syphilis*, vol. lxxii, p. 299.

6. Toeroek: *Mracek's Handbuch der Hautkrankheiten*, p. 482.

correct, the question is of little importance, inasmuch as a connective tissue cell may be transformed into an epithelium cell.

THE MALIGNANT GROWTHS WHICH DEVELOP IN DISPLACEMENTS.

Hallopeau and Derier¹¹ have reported a case of hydradenoma complicated with epithelioma, and Audry has reported a second similar case.

An epithelioma developed in Dyer's case of benign cystic epithelioma and also in White's case. Epithelioma may appear in moles and occasionally a spindle-cell sarcoma, but the tumor of greatest interest which develops in moles is the melanotic small round-cell growth which is now called nevocarcinoma.

The melanotic pigmentation which is present in

Fig. 1.—(Low power.) Simplest form of nevomelanoma. Epithelioma of the epidermis and nevomelanoma with its accompanying pigment in the derma.

greater or less amount in these growths is one of their most characteristic features. Clinically melanosis may involve extensive areas of cutaneous surface and be present for a considerable length of time before the tumor develops sufficiently to be recognized. It may spread into healthy tissue surrounding the tumor; it may affect the skin in large plaques at a distance from the tumor, as in Bamberger's case, or involving the lymphatic vessels, it may produce a true lymphangitis extending from the neoplasm to adjacent lymphatic glands.

Eve¹² has recently reported an important series of cases which show that melanosis may occur in the skin or visceral organs, or metastatic tumors may develop and

on examination lymphatic glands will be found in some part of the body as the first sign of disease and in close proximity to a mole which shows no change.

It is not uncommon for the disease to start from a mole which shows no symptoms of the disease. The case reported by Hanocque¹³ in 1868 as a case of primary melanosis of the axillary glands was possibly of this category. Melanosis is not always a sign of malignancy; it exists normally in the iris and some other parts of the body.

Ullman¹⁴ presented a case of cavernous angioma of the face before the Vienna Dermatological Society which exhibited black pigmentation. In discussion Kaposi stated that he could not conceive of such tumors being present in the absence of sarcoma, and he would advise that a very thorough search be made for the presence of sarcoma cells. His suggestion was followed with negative result; the patient died of septic pneumonia after being under observation for six years, and a careful post-mortem failed to reveal the presence of sarcoma in any part of the body.

Fig. 2.—(Low power.) Honey-comb formed nevomelanoma. The nevomelanoma has invaded the epithelioma, producing the honey-combed appearance. The epithelioma represents the comb, and the nevomelanoma and its accompanying pigmentation represents the honey.

Nervous exhaustion or shock may produce melanotic pigmentation. Bark¹⁵ has reported the case of a woman, 53 years old, who, receiving a severe mental shock caused by the suicide of her daughter, developed general melanoderma which lasted two years.

I find this difference between the pigmentation of the nevus and that of the nevocarcinoma: the pigmentation of the nevus is associated with the epithelium of the rete, the hair root or the glandular epithelium, while that of the tumor is associated with the epithelioid cells.

13. Hanocque: *Bull. de la Société Anat.*, 1868, p. 233.

14. Ullman: *Archiv für Dermatologie und Syphilis*, vol. xxxv, p. 197.

15. Bark: *Archiv für Dermatologie und Syphilis*, vol. xlv, p. 283.

11. Hallopeau-Derier: *Pratique Dermatologique*, vol. i, p. 202.

12. Eve: *Practitioner*, 1903, p. 165.

NEVOMELANOMA.

Schalek¹⁶ bases his opinion that the malignant growths which develop in nevi are carcinomatous mostly on a study of the chromatophores which have now lost their importance in determining the character of these growths. They are probably leucocytes transporting the superabundance of pigment which the tissues produce to the lymphatics and blood vessels, thereby causing melanemia and melanuria, which are essential features of the disease.

Ravogli¹⁷ especially emphasizes the alveolar arrangement and the relation between the epithelium cells and the pigment.

Green¹⁸ says that the sarcomatous nature of angiosarcoma which has an alveolar arrangement can not be questioned and that the distribution of the pigment in these tumors is not of such a kind as to indicate that the epithelioid cells were derived from the rete. I agree with Bland Sutton¹⁹ that the alveolar arrangement is simply an exaggeration of the normal arrangement of the nevus.

Waldeyer, whose opinion carries greater weight with it than that of anyone else who has accepted Unna's theory, bases his acceptance on an inspection of Unna's slides without showing that he has studied the effect of outward pressure, and the same criticism may be offered of most of the others who follow Unna.

For the material which enabled me to study these tumors I am indebted to Professor Herzog of the Chicago Polyclinic, and to Professors Hektoen and Le Count for placing at my disposition the splendid material contained in the laboratory of Rush Medical College.

The *Pratique Dermatologique* says "that the characteristic which distinguishes this tumor from all other cancers is that in the structure of its elements and in the texture of its tissue, it is intermediary between a carcinoma and a sarcoma."

That the tumor is derived from the epithelioid cell of the nevus there can be no doubt. Wherever we find one of these tumors forming in the epithelioid cells of the corium we know that an epithelioma like down growth of the rete may be seen in the immediate vicinity (Fig. 1).

This was the finding in Gilchrist's,²⁰ Waelsch's and Minne's cases and in all the cases examined by me. The microscopic picture which the growth presents depends on the manner in which these two tumors, developing in close proximity, combine.

Waelsch²¹ published his cases to demonstrate the fact that the tumor does invade the epidermis. He is quite correct, but he overlooked the important fact that when it does it pushes the epithelium cells aside. The cells of the tumor never mingle with the cells of the epidermis; one can always distinguish the tumor cells with the accompanying pigmentation from the epithelium cells. In some cases, through the development of the tumor cells in the epidermis, a honeycomb-formed tumor is produced.

As is shown in Fig. 2 the epidermis cells form the comb and the tumor cells with the pigmentation represent the honey. In cases where the epithelium cells are rapidly proliferated and imperfectly formed the growth is like a venereal wart, consisting almost entirely of scrolls of epithelium cells with small interspaces be-

tween the scrolls which contain the tumor cells and their pigment (Fig. 3). In this class of cases what is tumor cell and what is epithelium cell can always be determined.

This fact that we can distinguish the tumor cell from the epithelium cell, and the fact that the tumor cell always pushes the epithelium cell aside, are, in my opinion, important in determining the classification of this tumor.

Where a metastasis occurs to a neighboring lymphatic gland or develops in a visceral organ, it is the tumor cell and its pigmentation and not the epithelioma, which is transported.

Green says that the tumor of the choroid which has always been looked on as sarcoma and the formation of which has always been considered to be connective tissue, corresponds fully in architectural structure with the nevomelanoma.

Fig. 3.—(Low power.) Venereal wart-like form of nevomelanoma. The nevomelanoma, with its accompanying pigmentation has invaded the interspaces of the epithelioma-epithelial pearl.

Le Count (personal communication) states that given a metastatic growth of the skin, one can not determine whether the primary tumor was located in the skin or in the choroid, inasmuch as the same form, size and character of cell, the same pigmentation, and the same alveolar structure is present. The primary tumor showing the same characteristics could be distinguished by anatomic landmarks such as an attached piece of normal skin. Anyone with the necessary material at his disposal may convince himself that this statement is correct.

Gensberg and almost all other oculists believe that the choroid tumor is a sarcoma.

There is no tumor classified to-day as carcinoma which differs from all other forms as much as does this form.

16. Schalek: *Journal of Cutaneous Diseases*, 1900, p. 117.

17. Ravogli: *Journal of Cutaneous Diseases*, 1901, p. 270.

18. Green: *Virchow's Archiv*, 1893, p. 331.

19. Bland-Sutton: *Tumors, Innocent and Malignant*, p. 110.

20. Gilchrist: *Journal of Cutaneous Diseases*, 1899, p. 366.

21. Waelsch: *Archiv für Dermatologie und Syphilis*, vol. xlix, p. 249.

The rodent ulcer is a distinct variety of epithelioma until it reaches the terminal stage, when it assumes the general characteristics of all other malignant epithelium neoplasms; not so with nevocarcinoma; it presents special clinical and histologic characteristics from beginning to end.

Birch-Hirschfeld²² says: "In regard to the clinical features of these tumors we will state that the melanoma, as is well known, shows a high degree of malignancy, which is not due to a tendency to local destruction of the growth, as in carcinoma, neither is it due to toxemia, but rather to the multiple development of metastatic tumors which appear in the terminal stage of the disease. This disposition to the formation of embolic metastasis must be considered the essential basis of the clinical malignancy of the sarcoma."

From what we have said it will be seen that this tumor differs both clinically and in its histopathology from carcinoma. It therefore should not be classified as a carcinoma. It develops in displaced embryonic tissue, which is probably of epithelium origin and it should be classified separate and apart from all other malignant growths and called nevomelanoma.

THE VALUE OF SYMMETRY IN EDUCATION AND CHARACTER.

CHAIRMAN'S ADDRESS BEFORE THE SECTION ON STOMATOLOGY AT THE FIFTY-FIFTH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, AT ATLANTIC CITY, JUNE 7-10, 1904.

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In the contemplation of any subject, be it animate or inanimate, the pleasure and satisfaction derived therefrom is dependent in a great degree on its symmetrical proportions; indeed, asymmetry, as seen in many objects, and especially in the human form, is a positive disfigurement, and is often repulsive.

But symmetry as I wish to discuss it will be considered in connection with the mind and soul. It will be noted at once that lack of symmetry in the mind is not so readily observed as a similar condition of the body, although they are vastly more common, and the deviations from what might be considered typical in the former would be altogether hideous if the same disproportion were exhibited in the physical system. Imagine a nose, which by a slight aberration of development has continued to grow until it is twelve inches long; or one eye eight inches in diameter and the other a mere pinhole! Such an extreme in physical deformity has probably never been known, yet similar disproportions, or greater, may easily be conceived to exist in the different powers of the mind. In the dental profession we should not expect to find excessive abnormalities or great deficiencies in intellect, but there are many indications that the majority of practitioners might develop their mechanical and intellectual powers in certain directions with great benefit to themselves and patients, and everlasting good to all people over whom they have any influence. This means that there are many defects in symmetry to be observed among dentists, and even among stomatologists.

While some defects may be found in the best of men, those which we have now under consideration are such that they, in many instances, ruin the man as a practitioner, and in nearly all the other cases mar his bril-

liancy and seriously handicap his professional progress. Take, for example, the life of the late P. D. Armour, the great capitalist of Chicago; his strict devotion to business, at the expense of all social life and entertainment, and his abstemious habits were still kept up even after his financial worth was counted by millions. While his business ability was increasing, other faculties of mind and heart were weakening, and when this hypertrophic condition, in the shape of an enormously enlarged business capacity, became pathologic, and the discrepancy between this and other bodily and mental functions became so great that he began to suffer from the strain, he was urged to rest and go to Europe. He went, but he had lost all capacity for the enjoyment of travel and change of scene, and he died in the harness which he had himself constructed. The following quotation from Charles Robert Darwin shows still further the effect of asymmetrical development:

I have said that in one respect my mind has changed during the last twenty or thirty years. Up to the age of thirty, or beyond it, poetry of many kinds, such as the work of Milton, Gray, Byron, Wordsworth, Coleridge and Shelly, gave me great pleasure, and even as a schoolboy I took great delight in Shakespeare, especially in the historical plays. I have also said that formerly pictures gave me considerable pleasure, and music very great delight. But now for many years I can not endure to read a line of poetry. I have tried lately to read Shakespeare, and found it so intolerably dull that it nauseated me. I have also almost lost my taste for pictures or music.

. . . This curious and lamentable loss of the higher esthetic tastes is all the odder, as books on history, biographies and travels (independently of any scientific facts which they may contain), and essays on all sorts of subjects, interest me as much as ever they did. . . . Why this should have caused the atrophy of that part of the brain alone on which the higher tastes depend I can not conceive. . . . If I had to live my life over again, I would make it a rule to read some poetry and listen to some music at least once every week, for perhaps the parts of my brain now atrophied would have thus been kept active through use. The loss of these tastes is a loss of happiness, and may possibly be injurious to the intellect, and more probably to the moral character, by enfeebling the emotional part of our nature.

Prof. Charles Eliot Norton says: "Whatever your occupation may be, and however crowded your hours with affairs, do not fail to secure at least a few minutes every day for refreshment of your inner life with a bit of poetry."

A few weeks ago I met a physician in the suburbs of Boston. He was apparently taking a walk for pleasure, and was observing some birds by the way. My first thought was one of surprise that this physician, in full practice, the author of a large work and in many ways one who must meet numerous demands, could and would find the time for such a purpose, but a moment's reflection convinced me that such use of time was very wise and judicious—that it was necessary, not alone for diversion and recreation, but that it served to cultivate the mind, to broaden the view and to render more sensitive and acute the artistic and moral sense. In many other ways a study of the lower animal's increases, by comparison, our knowledge of the higher; and this is, as we well know, of essential value to the physician. It is a grave mistake to neglect the cultivation of the artistic and esthetic sides of our nature, of a love of the beautiful, of sympathetic feelings and of all that is delicate and refined, whether one is fitting to become a physician, a general, or a special surgeon.

Away with the idea that the surgeon needs no feelings of delicacy and sympathy; that, devoid of all sense

²² Birch-Hirschfeld: *Real-encyclopædie der Gesamte Heilkunde*, vol. xxi, p. 179.