

1857.

"The time is arrived to enter upon a more advanced path, and surgery ought to surround itself with all the advantages, which the physical and chemical sciences can bestow."

Sedillot.



An.

The Pathology of Tumours.

with

A description of fifty examples examined by the author.

illustrated

by

One coloured and ninety-two Pencil Drawings-

By.

Charles Murchison L.R.C.S.E.

and one of the Presidents of the Royal Medical Society -

Being.

A Thesis

presented to the Medical Faculty of the University of Edinburgh
on becoming a Candidate for the degree of M.D. March 31st 1851.



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Introduction.

The great aim of every student of medicine should be to acquire a habit of observation and a habit of reflection. For medicine, as a science, is founded on a vast accumulation of facts, and an individuals knowledge of medicine, and his ability to practise it aright, must always be in proportion to the amount of facts which that individual has accumulated in his mind, and to the talents which he possesses for drawing correct conclusions from these facts.

Entertaining such views, I thought I could not choose a better subject for a graduation thesis, than the detail of observations on numerous morbid growths, which I have had an opportunity of examining - Few of these observations are interesting from their novelty, but still they serve to confirm observations already made by others, and it is only a vast accumulation of such observations that will ever settle a question so much disputed as the use of the microscope to practitioners of medicine and surgery. As in most disputed questions in science, the great obstacle which prevents opposing parties coming to terms, is, that each one carries his

* Where is the party that maintains this? AB.

own opinion a great deal too far, so in the
 question before us, while one party maintains
 that microscopic examination is almost the only
 thing requisite for the diagnosis of the malignant,
 or non-malignant nature of a morbid growth,
 the other asserts that the microscope is of no use
 whatever, nay, worse than useless, and that
 all that is requisite for a surgeon is a "Tactus
 eruditus", coupled with a knowledge of general
 symptoms and experience. Such contrary
 statements as these, emanating from men of
 great distinction, cannot but tend to create
 confusion, and it therefore becomes a very
 interesting, but difficult question, to determine
 what amount of confidence is to be placed upon
 each. Now, I quite willingly acknowledge,
 that a skilful and experienced surgeon may,
 independently of the microscope, arrive at a
 correct conclusion as to the nature of the majori-
 ty of tumours, yet even the most skilful and
 experienced must confess, that they are occa-
 sionally in error, and the less skilful and
 experienced still oftener, and if it can be
 shown, as has been done, that a man

may by microscopic examination alone, determine the nature of ^{some} tumors, surely, it is the duty of even the most skillful and experienced to make themselves acquainted with a means of diagnosis, which may prove serviceable when their ordinary resources fail. But the microscope has been said by some to mislead, in place of assist those who employ it. Those, who have had little experience in its use, and no correct knowledge of the minute structure of the human body, both in health & also in disease, and who are consequently quite unqualified to draw correct conclusions from what it discloses to them, it will unquestionably mislead; but the same remark will not apply to those who are experienced microscopists. At the same time it must be allowed that examination with high microscopic powers is in itself of little value. It is only when taken in connection with the general history, situation, & physical appearances of the structure in question, that it becomes so useful in the determination of the nature of that structure. But when I speak of the microscope as a means of diagnosis of the nature of

*1. I do not mean this remark to apply to the use of the exploring needle in ascertaining whether a fluid is present in any tumour or the nature of the fluid, but only to ascertaining the malignant, or non-malignant nature of a tumour. For this purpose too it may in some cases be useful, but the advantages to be derived are not such as to justify the general practice of employing it.

*2. On the Nature & Structural Characteristics of Cancer by J. Muller. transl. by West. 1840. p. 5.

tumours, I would not have it understood that I
 consider it of very great service in determining the
 nature of a tumour before its removal, or whether
 or not it should be removed at all. Of course this
 could not be done without resorting to the use of
 the exploring needle; and I believe that the
 advantages to be derived from microscopic
 examinations are not such as to justify a
 general practice of plunging an exploring needle
 into the substance of occult tumours, and there-
 by incurring the dangers which often result
 from such a practice.¹ Even Muller, one of the
 first & greatest authors on the minute anatomy
 of morbid growths thus writes "Microscopical
 and chemical analyses can never become a
 means of surgical diagnosis; it were ridiculous
 to desire it or to suppose it practicable."² But
 though no higher value than this be placed
 on the microscope, still I think it is circum-
 stant upon every surgeon and physician to
 employ it in the study of morbid structure,
 for I believe with Muller, that "it is not
 possible to determine the fundamental points
 of difference between various morbid structures,

* Muller Op. cit. p. 6.

I cannot agree with Dr. Bennett, who considers these two statements of Muller's as contradicting one another. The former obviously refers to diagnosis before removal, the latter to ascertaining the precise nature of a tumour after its removal.

Obsv. on Cancerous Haemoid Growth by J. G. Bennett, p. 222. Note 1.

No doubt this ^{is now} refers to ~~different things~~ but if the latter statement be true, it shows that diagnosis of tumours cannot be arrived at with certainty without the microscope - H.B.

except by means of chemical and microscopical examination" *1. and as Dr. Baillie, the pathologist, has remarked, "a knowledge of morbid structure does not lead with certainty to the knowledge of morbid actions, although the one is the effect of the other; yet surely it lays the most solid foundation for prosecuting such enquiries with success.

In the following observations, my great object has in every instance been to arrive at the truth without reference to any preconceived opinion - The tumours were examined as soon as possible after their removal from the body, their principal characters noted down, and drawings made of their microscopical structure - As regards the latter, ~~an~~ ^{every} attempt has been made to make them resemble nature as closely as possible -

Before proceeding to the Observations, which constitute the principal portion of this thesis, I shall make a few general remarks on the subject of

Tumours

which these observations are intended to illustrate. A Tumour may be said to be the pathological

⁺ Observations on Tumours by J. Abernethy 1811.

formation in some part of the body of a structure either similar to some of the natural tissues of the body, or totally different from any of these. The causes of the origin of tumours are as yet but little known. They no doubt depend at their commencement upon an exudation of Liguor sanguinis which subsequently undergoes organization, or to use the equally expressive words of Abernethy, "on the deposition of the coagulable part of the blood the effect of accident or of a common inflammatory process." *¹ What leads to this exudation, however, though sometimes it may with propriety be referred to blows and other accidents as hinted at by Abernethy, is yet in the majority of cases unknown to us. Equally unknown to us are the laws which regulate the organization of this exudation, or in other words, why, at one time it should become organized into fat, at another time into fibrous tissue, or at another, into that of Cancer. The laws of "Analogous formation", by which we are wont to explain the mode of growth of healthy tissues here fail us. Yet still in the case of these tumours, which resemble healthy tissues, we cannot deny that the surrounding parts

exercise no small influence on the nature of the tissue into which the exudation becomes transformed. It has been just observed that tumours may consist of a structure either similar to that of the natural tissues of the body, or totally different from any of these, not in their individual elements, but in the mode of arrangement of these elements, for even in Cancer we find no elementary structure, which we do not also find in any healthy organ of the body. Now it becomes a matter of the highest interest & importance to determine, whether the latter class of tumours, or those which have been designated heterologous, correspond with those tumours, which for various reasons have been justly designated malignant. On the solution of this problem I think will in a great measure depend the practical utility of the microscope in the examination of morbid growths. In the first place, however, it is necessary that we attach a definite meaning to the term malignant, for it is one which has been employed in very various significations, such as a tendency ^{in a tumour} to recur after removal, a tendency to involve the neighbouring tissues, a tumour arising or resulting from a constitutional

+1. Op. cit. p. 137.

taint of the System. Dr. Bennett believes that the
 most accurate meaning of a malignant growth,
 is one which has "the power in itself of redevelop-
 ment."; though at the same time he thinks along
 with Dr. Walshe, that it would be "a great gain
 to science" to relinquish the word altogether.^{x1.}
 He does not state, however, whether the tumours
 he describes under the name of "Cancers" are
 malignant in the above signification of the word,
 or whether the term malignant is restricted
 to them alone. On the contrary we know, and
 indeed Dr. Bennett allows, that tumours of the
 most innocent nature, fatty tumours for instance,
 occasionally return after being removed, so that
 if this is the signification of the term malignant,
 I quite agree with Dr. Bennett, that it would
 be "a great gain to science" to relinquish the term.
 But if the term be employed in a more compre-
 hensive sense, I at the same time believe
 that it is of the utmost importance to science,
 and still more to practice,
 to retain it. Those tumours, in my opinion, should
 be regarded as malignant, which locally are charac-
 terised by rapidity of growth, or by a tendency
 to involve the neighbouring tissues, or which whether

local or constitutional in their origin at first, at all events tend ultimately, to taint the system, and manifest this tendency in various ways, as by appearing successively in different parts of the same individual's body, by a tendency to reproduction after removal, and by affecting the general health. But it is true, one may say, we see the most simple and innocent tumours presenting some of the above characters, for example, we may see a fibrous tumour becoming reproduced after its removal, fatty tumours appearing in many parts of the body at once, & so on, but still every surgeon knows, and will allow that there are a class of tumours to which the above characters are more applicable than to others.

Dr. Bennett, in the preface of his work, the great object of which is the discrimination between Cancerous & other tumours, indicates, ^{due attention to} that, "the pathological anatomy of Cancerous & canceroid growths will afford to practical men" ideas sufficiently fixed and positive to govern their conduct in many important & dangerous cases" But I think it must be evident, that unless Cancerous tumours possess some such characters

as have above been assigned to the term malignant, while other tumours do not possess them, or at all events in a less degree, there is little use, practically speaking, in ascertaining whether a tumour is Cancerous or not.

To assign a definite meaning to the term malignant, is impossible, and at the same time not desirable. It is a word which must be regarded as possessing a comparative signification, those tumours being most malignant which exhibit most of the characters above ascribed to malignancy. Thus a tumour, which has a tendency to be reproduced after removal is more malignant than one which has not, & less malignant than one which besides having a tendency to be reproduced after removal, has also a tendency to multiply itself in different parts of the body; or to involve the neighbouring tissues & rapidly to ulcerate, & still less malignant than one which manifests all these tendencies. - With these views of the signification of the term malignant, I believe that the best way of considering the subject of tumours, will be to adopt a division of these

according to their structure, and under the head of each class mention the degree of malignancy by which it is characterised.

We shall first consider Cancerous Tumours

I. Cancerous Tumours.

These possess a structure quite different from any other mal-tissue of the body, and have hence been designated heterologous - They are also characterised by a high degree of malignancy. Some forms & specimens of Cancer no doubt exhibit a greater degree of malignancy than others, but all agree in possessing one or more of the characters already assigned to that term. They have a decided tendency to be reproduced after removal, either in the site of the first tumour, or some other part of the body. They have a tendency to appear in different parts of the body. They have also a tendency to involve in their growth the neighbouring healthy tissues, a tendency to softening, & to ulceration, and in their ultimate stages there can be no question that they seriously affect the general health, and very frequently are the cause of death. Their growth is in general accompanied by more or less pain -

The appearance of a Cancerous tumour will of course

vary greatly according to the kind of Cancer which is examined, as will be afterwards considered, but I believe it may be safely said, that in the great majority of Cancerous tumours, if not in all those concerning which we can speak with any degree of certainty, a "milky juice" is exuded from their substance on pressure. Though, as above mentioned, the tissue of a Cancerous tumour is totally different from any normal tissue, yet still the elementary structures composing that tissue do not differ from those found in the healthy organs of the body. The principal of these are the following.

1. Fibres - Almost all Cancerous tumours contain more or less fibrous tissue, it being this which imparts to them their firmness of consistence. The fibres of Cancerous tumours differ in no essential particular from those met with in a healthy structure. The most common are white & very delicate with a diameter of $\frac{1}{2400}$ to $\frac{1}{5000}$ inch. Along with these there are sometimes ^{the} yellow elastic, or the so-called fibres of Hæmule, but the presence of these is by no means constant. The quantity of the latter when present is in general small in amount, and arranged in an irregularly peticulate manner. The

4 Vogel's Path: Anatomy page 296.

7 This is not clear - RB

former again, generally run parallel to one another so as to form bands which intersect one another, and which are so arranged as to leave numerous empty spaces in the interior of which is enclosed the cellular element of the tumour. See Figs. 2, 4, &c. Vogel thinks that the "proudish capsules" containing cells often met with in Cancer are formed as follows - that there is first formed a cell with a thick cell wall, and that in this as a parent cell new cells are formed, while the cell wall assumes a fibrous character.* This is however a very improbable explanation, for it is contrary to all that we know of the laws of cell growth, that the wall of a nucleated cell should become transformed into fibrous tissue.† It seems more probable, that from the first cell others are developed, in such a manner as to constitute a proudish mass, which gradually pushing aside the surrounding fibrous tissue, forms a rounded space for its accommodation. This explanation is also consistent with the fact, that as a Cancer becomes older, it becomes softer, and contains more cells and less fibrous tissue.

2. The presence of cells may be said to be almost absolutely essential to the constitution of Cancer, though

at the same time in some examples of retrograde Cancer, as will afterwards be shown, we may be unable to detect any. But in making the above statement, I do not mean to imply that there is one sort of cell peculiar to and characteristic of Cancer. On the contrary, the more one examines such tumours, the more must he become convinced of the fact, that every form of cell is met with in Cancer, and that it is in general quite impossible from looking at a cell to pronounce whether it is cancerous or not. The drawings illustrative of the "Observations" in this thesis sufficiently corroborate the truth of this assertion. At the same time there are certain characters in general presented by Cancer cells, which it will be right to mention. The form of Cancer cells is exceedingly various. We find them round, oval, angular, caudate, fusiform, elongated, &c. (see figures) - The oval & round are however the most common. Each cell wall is either transparent or slightly granular, and exhibits under the microscope a distinct outline. They vary greatly in size some having a diam^d of $\frac{1}{250}$ inch others only $\frac{1}{2000}$ or less. Acetic acid renders the cell

+ See Olsens. XLVII

wall more transparent, & if strong, dissolves it.
 Dr. Bennett remarks that young cancer cells are
 most easily affected in this way. - Each cell wall
 contains one or more nuclei, and, generally speaking,
 the size of the nuclei, as well as their number, is greater
 in the case of Cancer cells than in most others. The
 nuclei have a round or oval form and are not
 acted upon by Acetic acid. - Each nucleus may
 contain one or more rounded granules or nucleoli in
 its interior. - Sometimes large parent cells are met
 with, containing numerous nuclei, and often one
 or more perfect young cells. (See fig. 5.) Besides the Fig: 5.
 nucleus each cell contains a transparent fluid
 between it and the cell wall, and sometimes a
 few molecules and granules. The latter are occa-
 sionally so numerous as completely to occlude the
 nucleus, and this probably accounts for the frequent
 occurrence in Cancer of compound granular cells.
 At other times coloured or black pigment is deposi-
 ted in the interior of Cancer cells, as in that form
 of Cancer, which Vogel (Hothus) have mentioned as
 a distinct species under the name of "melanotic".
 But the most remarkable peculiarity of cancer cells is
 their power of rapidly multiplying by a process of

endogenous reproduction. - The development of Cancer cells has been well described by Dr. Bennett in his admirable work in *Cancerous & Canceroid growths* p 146. Molecules are precipitated in a blastema, and become fused into nucleus. - from the surface of this nucleus a cell wall arises - other nuclei appear in the interior of the cell, originating in a manner similar to the first one. - gradually these nuclei become enlarged & transformed into young cells, the nucleoli becoming nuclei. - lastly, the parent cell becomes distended, bursts, and liberates its contents. -

3. A transparent viscid fluid in which the cells are suspended. This fluid sometimes exists in great quantity, especially in the gelatinous form of Cancer. The true nature and composition of this fluid seem to be but little known. Vogel says it is characterized by a principle resembling mucin, which coagulates into an amorphous mass on the addition of Acetic acid, Sulphate of Iron &c. It seems to be the fluid from which are precipitated the granules met with in Cancer, & from the fusion of which together the nuclei of the cells are formed.

4. Molecules & granules, & oil globules occur in greater

or less quantity in most specimens of Cancer, though sometimes they are in very small quantity. Not infrequently, oil globules are met with, occasionally a few scales of Cholesteroline. (Fig. 5.)

5. The amount of Bloodvessels in Cancerous tumours varies greatly. Sometimes few if any new Bloodvessels are formed, the morbid mass being nourished by the vessels of the part in which it is deposited. At other times the quantity of new vessels formed is very great, thus accounting for the hemorrhages which take place from the ulcerated surfaces of some Cancerous tumours. Some of these newly formed vessels are represented in fig: 12. These vessels generally run among the fibrous portion of the Cancer: Vogel says, "rarely, if ever, between the cells"; but in the case detailed in Obs. III. the vessels were seen lined on either side by the elongated Cancer cells.

The presence of Lymphatics or Nerves has never been demonstrated in Cancerous tumours.

The above are the elementary structures commonly met with in Cancer. We now come to consider which of these are necessarily present, or in other words if there is any structure peculiar

*¹. Op: citat: p. 172.

2. *Physiol: pathologique* Journ: II. p. 254.

*³ *On the Nature & Structural Characteristics of Cancer* V. p. 64 &c.

*⁴. *Pathological Anatomy* transl. by Day. p. 295. 6.-

to Cancer, and by seeing which one could distinguish it from all other morbid deposits. Much difference of opinion prevails on this point. Professor Bennett maintains that cells suspended in a transparent fluid, and infiltrated through a fibrous stroma exist in every Cancerous formation, and that by this structure Cancer may be distinguished from all other morbid deposits.^{x1} Lebert on the other maintains that the cellular element is the only one which is constantly and essentially present in Cancer, and he also seems to think that the form &c. of the Cancer cells are sufficient to enable one to distinguish Cancer from all other morbid productions.^{x2} With regard to the existence of a fibrous structure in Cancer Muller says that sometimes none can be detected.^{x3} and Vogel expressly states, that "in some forms of Cancer, as for instance in encephaloid, these fibrous structures are altogether absent."^{x4} It therefore becomes a very interesting and important enquiry in reference to the pathology of Cancer to determine whether fibrous tissue is necessarily present in it or not. It is evident that such a question as this can only be deter-

*Monthly Journal of Science, Edin^g. 1850. p. 508.

-ruined by a series of very careful observations, and even then a very great obstacle to arriving at the truth is the almost universal distribution of fibrous tissue in all the organs in which cancerous deposits occur, so that it, ^{often} becomes exceedingly difficult to determine whether the fibres found in a cancer are a portion of the ~~eroded~~ deposit, or a portion of the organ in which this deposit takes place; for, as has been already remarked, there is no difference whatever between the fibres found in a cancer & those found in a healthy tissue. In the solving of the above question Dr. Redfern has pointed out the propriety of attending to whether any examples are met with of cancerous deposits which contain no fibrous tissue, especially in those parts of the body where fibrous tissue does not exist naturally. He has himself detailed the particulars of a case in which cancerous deposits were found after death in various parts of the body: most of these on examination presented the ordinary appearance of cancer, but a similar deposit in one of the hemispheres of the brain where no fibrous tissue exists naturally, consisted of variously formed cells without any fibres.⁺ A case of a similar nature forms the sub-

ject of Ob: V. In this case very faint traces of delicate fibres could be detected in the cancerous deposits in the Lung, but none whatever in the growth over the Sacrum. From these two cases and those alluded to by Vogel, it seems probable that a fibrous tissue does not necessarily exist in Cancer. But it may be asked, "how is it then that fibrous tissue is so very frequently present in Cancer?" This, I think, as has been just mentioned, may be owing to the almost universal distribution of fibres in the tissues in which Cancer is developed, and may be still further explained by considering the origin & growth of Cancerous tumours. When we see a morbid mass deposited in an organ, and at the same time the normal structure of that organ gone, we must admit that the latter has become transformed into the former, or what is perhaps a better mode of expression, that the latter has disappeared, and that its place has become occupied by the former. It is not to be expected that the accomplishment of this process can be a sudden one, or that all the elements of the normal structure will disappear with equal rapidity. On the contrary it seems more natural to imagine that those tissues which are known to

7th Monthly Journal of Med. Science 1850. p. - 159.

Clinical Lectures by Dr. Bennett.

be strongest, and longest to resist change, will be
 the last to disappear: and accordingly, we find,
 that when Cancer is deposited in an organ, the
 fibrous tissue is the last to disappear. If we
 consider the progress of a Cancerous or most other
 morbid deposits, we must see at once that in
 every case the ultimate termination is destruction
 of the tissue in which it takes place. The great
 peculiarity of Cancer is the high state of vitality of
 the deposit which causes this destruction, con-
 sisting, as it does, for the most part of highly develop-
 ed nucleated cells, especially when contrasted with
 Tuberculous deposits, in which there does not
 seem to be sufficient vitality for perfect cell-forma-
 tion. In connection with this it is interesting to
 observe, that Tubercle is most common in those
 cases in which the whole system manifests a low
 state of vitality, the very reverse being the case with
 Cancer. Both, however, agree in their ultimate
 effect - the destruction of the organs in which they
 occur. The origin and growth of a Cancer would
 therefore, seem to be as follows. In the first place
 an exudation is thrown out from the capillaries of the
 part, described by Vogel, as "a firm, dense, amorphous,

*¹ Vogel Op. citat. p. 291.

*² Muller Op. citat: p. 29.

*³ Vogel's Path: Airst: p. 309.

substance", and designated by Cullen the "serminum
 morbi."² This constitutes a matrix or cytoblastema,
 from which are developed the cancer cells in a
 manner which has already been described. As these
 cells increase in number, they gradually by
 their pressure cause to disappear the natural
 structure of the organ, destroying first those
 tissues which are most amenable to destruction,
 and ^{affecting} the more durable, last. But even these
 may ultimately quite disappear, and the more
 rapidly, the more rapid is the growth & reproduc-
 tion of the cells. I do not think it can be regard-
 ed as any argument against the opinion which
 I have been advocating of fibres not being neces-
 sarily present in cancer, that we very often meet
 with cancerous tumours containing more fibrous
 tissue than naturally exists in the part of the body
 in which the tumours occur, for there is every
 reason to believe that in such cases the tumours
 have not been at their commencement cancerous
 tumours at all, but simple fibrous tumours, which
 have afterwards degenerated by having cancer
 cells deposited in their substance.^{7 3.} But even
 allowing that some such tumours have been

⁺ as the one described in Obs. XXVI.

Cancerous ab. origine, it is quite possible that in some cases the fibrous tissue already existing in the part, by the law of "analogous formation," exercises such an influence over the exudation or cytoblastema, as to convert a portion of this into new fibrous tissue, as in the growth of a purely fibrous tumour. All I mean to advance is, that fibres are not always present in Cancerous tumours, and consequently that they are not an essential element of Cancer. With regard to the cellular "element," there are some tumours,^{xⁱ.} it is true, which we cannot doubt to be Cancerous, and in which we cannot detect a single perfect nucleated cell. But still, even in these cases, we can trace evidences of the previous existence of cells, in the presence of a quantity of oil globules, & albuminous granules, into which the cells have become transformed, and I therefore conclude, that the only element peculiar to Cancer is nucleated cells. I have already mentioned that little dependence can be placed on distinguishing a Cancer cell from any other by its form, and mere appearance, for almost every form of cell may be met with in Cancer. The question then comes to be "how we by

+1. Op. citat: p. 32.

+2. *Physiol. pathologique*. Tom. II p. 270 - 286.

^{examination}
 microscopic alone always ascertain whether a
 tumour is cancerous or not? "I myself believe
 not - The microscope no doubt in many cases
 affords most invaluable information & assistance,
 but in every case before forming a decided opini-
 on, one should make a careful examination
 of the appearances presented by the tumour to
 the naked eye, so as to ascertain the presence or
 absence of a milky juice &c., and having done
 so, weigh the information thus obtained with
 that afforded by microscopic examination -

I shall now proceed to consider the different forms
 of cancerous tumours which present themselves. Various
 classifications of these have been proposed by dif-
 ferent writers on the subject. One of the first, (and
 still the one most generally adopted by surgical
 authors,) was a division of them into four classes,
 1. Scirrhus, 2. Encephaloma, 3. Melanosis, & 4. Fungus
 haematodes - Muller makes five species which he
 names 1. Carcinoma fibrosum, 2. C. reticulare, 3 C.
 alveolare, 4. C. melanodes & 5. C. medullare. ⁴¹
 Lebert mentions six, 1 L'encephaloïde, 2 Squinche -
 3 Cancer gélatiniforme, 4 Cancer mélanique, 5 Cancer
 haematodes & 6 Cancéreuse Infiltration - Vogel speaks

*¹. Vogel's Path: Anat. p. 316.

*². Op. cit - p. 172.

*³. Nature & treatment of Cancer. p. 12.

of four, 1 Cellular Cancer or Encephaloma, 2 Fibrous or Scirrhous, 3 Melanotic C. & 4 Gelatinous or Colloid C.^{x1} But the arrangement which is most convenient is that of Dr^o Bennett^{x2} & Walsh^{x3}. These authors make only three varieties of Cancer, viz 1. Scirrhous or hard Cancer, 2. Encephaloma or soft Cancer & 3 Colloid or Jelly-like Cancer. These three forms we shall now consider.

1. Scirrhous - Fibrous Cancer (Vogel) Carcinoma triplex vel fibrosum (Muller) &c. The term Scirrhous, which is derived from the greek word σκίρος marble, has been applied to that form of Cancer which is remarkable for its great hardness. When cut with a knife, it grates under its edge like a piece of cartilage. Combined with hardness it also possesses a considerable degree of toughness. The colour of a freshly made section approaches most commonly to a greyish white, and on making a tolerably thin section of the mass, and holding it up to the light, it is found to be somewhat translucent. On squeezing the tumour there exudes from its substance a juice of milky consistence and a greyish white colour, except when tinged with blood. This juice on microscopic examination is found to contain the cellular element of the growth, and is enclosed

in the meshes of a dense fibrous stroma. The presence of this milky juice is of great importance in a diagnostic point of view serving to distinguish ^{scirrhous} tumours, which at first sight might be taken for fibrous tumours - Cruveilhier indeed says, that, judging by the naked eye, this is the only distinctive character of Cancer. The amount of this juice varies greatly, in different specimens of scirrhous. Sometimes it is very sparing, as at an early stage of growth, when it is often very difficult, if not impossible, to state whether a tumour is a Cancer or a simple fibrous tumour; but as a scirrhous advances in growth, the milky juice gradually increases, while the fibrous element disappears, probably from absorption caused by the pressure of the increased amount of cells, until at several points it assumes a semifluid consistence - These softened portions consist almost wholly of cells, entire & broken down, and closely resemble soft Cancer. - Scirrhous Cancer is not in general remarkable for its vascularity, yet still despite the assertions of Scarpa to the contrary, Scirrhous tumours may be injected; and after this has been done, the distribution of vessels.

*1. Slutter op: citat: page 44.

is generally found to be irregular, being far more abundant at some parts of the tumour than at others. The form of Cancer described by Muller under the title of *C. reticulare* seems to be a variety of Scirrhus, though certainly it is very difficult to form a clear idea of the description he gives of it. -

2. Encephaloid. Medullary Sarcoma (Abernethy) Carcinoma medullare (Muller) - Cellular Cancer (Vogel) This form of Cancer is characterised by its great softness, and from its resemblance to the substance of the brain it was so designated by Loennec. (*Ἐγκέφαλος* the Brain). It is remarkable for its rapid growth, & for the great preponderance of the cellular over the fibrous element, owing to which circumstance it has been named by Vogel Cellular Cancer. - The small amount & sometimes the total absence of fibrous tissue (Obs. V. & Page. 25) is probably the result of the rapid growth & increase of the cells leading to its disappearance by absorption, ^{or to its having existed from the commencement} sometimes we find an encephaloid tumour almost entirely composed of elongated fusiform cells, exactly like fibre cells in the act of becoming transformed into fibres without however any

trace of true fibrous tissue. These caudate cells were considered by Valentin as characteristic of Encephaloid, but they exist in many other sorts of tumours, and moreover they are often entirely absent in an Encephaloid. The appearance presented by an Encephaloid tumour will vary greatly according to the degree of its vascularity. Sometimes it presents a sanguineous appearance, & bleeds on the slightest touch, owing to the large number of vessels it contains, & also to blood being extravasated from these vessels into the surrounding parts. This form has been named *Fungus hæmatodes*, but has been undeservedly separated from the class of encephaloid tumours. In other cases there are fewer vessels, and the mass presents a yellowish white colour, with a consistence varying considerably according to the degree of softening and the amount of fibrous tissue it contains. A small portion of an encephaloid tumour when carefully examined, will generally be found to have a tendency to split up in one direction more than in another, and on squeezing it a milky juice exudes from it. In addition to their rapidity

*¹ Walsh. Op. citat: p. 16.

of growth Encephaloid tumours are also remarkable for their tendency to soften & assume an ulcerated condition, & also for the great size which they often attain. Prof. Béniard observed an encephaloid tumour in the thigh of a female as large as the body of a full grown man.⁴¹

It must however be remembered that though well marked examples of Scirrhus & Encephaloma are very different from one another, yet that we constantly meet with cases which exhibit all stages of transition from the one to the other, many of which it would be difficult to refer either to the one or the other.

3. Gelatinous or Colloid Cancer - Carcinoma alveolare (Muller) - Cancer areolaire (Bruveilhier) - C. gelatiniforme (Loennec). The chief peculiarity of this form of Cancer is the great quantity of that viscid fluid which has been already alluded to, and more or less of which exists in all examples of Cancer. It consists of a stroma of fibrous tissue arranged so as to form numerous loculi, which are all full of the gelatinous fluid. This substance is either perfectly transparent, or slightly opalescent. Its colour

is generally greyish or that of amber, more rarely, green, red, or black. Microscopic examination shows that this gelatinous substance is made up of nucleated cells, resembling those found in other forms of Cancer, but generally very large, with thin and delicate walls - Vogel says he has occasionally found in it crystals of Ammoniac - Magnesian phosphate. The fibrous loculi containing this gelatinous substance vary in size from that of a pin's head to a large marble - they sometimes communicate with one another, at other times they are quite isolated - Colloid Cancer in most cases contains but few vessels. I am not aware of its having ever been carefully injected. Cruveilhier describes both arteries & lymphatics as permeating the fibrous stroma of the mass, but as the disease advances, no trace of these, he says, can be detected - Colloid cancer most frequently occurs in some portion of the intestinal canal or on the free surface of the peritoneum.

In some tumours we find a combination of colloid & some other form of Cancer. Thus colloid masses are sometimes found imbedded in a basis

+¹. Op. citat. p. 29.

+². Obrew. XI^o VII.

of Scirrhus, as in a case mentioned by Dr. Walshe⁴¹.
~~These form a transition.~~ These form a transition
from the one form of Cancer to the other - Some-
times indeed we find all the three forms of
Cancer occurring together in the same tumour.

Though all examples of Cancer may I
think, be referred to one or other of the above three
forms, or to a combination of these, yet there are
one or two varieties which are worthy of notice
here. In the first place Fungus haematodes, as
already mentioned, is a term which has been
applied to those varieties of Encephaloid, which
are remarkable for their great vascularity & ten-
dency to bleed.

When again the cells of any of the forms of Cancer
contain a greater or less quantity of dark brown
or black pigment granules, we have the melano-
tic cancer of Vogel or Cancer melanodes of Muller.⁴²

It has been already remarked that all forms
of Cancer possess a high degree of malignancy;
but it may also be observed that the more nearly a
Cancer approaches the Encephaloid form, the greater will be
its malignancy; the more rapidly will it grow, involve the
surrounding tissues, soften & ulcerate -

II. Tubercular Tumours.

Tubercular Sarcoma (Abernetty) - Tubercular tumours are developed in those constitutions affected with what is generally denominated the scrofulous diathesis. Like Cancerous tumours they, have a tendency to softening, suppuration, & ulceration, and owing to the constitutional predisposition they are also like Cancerous tumours, often found in different parts of the body at the same time; but unlike Cancerous tumours, their growth is in general slow, they have little tendency to reproduction after removal, they are not the source of such pain, nor are they so fatal in their results. The origin of Tubercular tumours no doubt depends on the same cause as that of all other morbid growths, viz: on an exudation of Liguor Sanguinis from the Capillary blood vessels of the part. This exudation is not organized into a structure like that of the surrounding tissues, as in the case of a fatty tumour, neither as in the case of Cancer does it form a matrix for the formation of highly developed nucleated cells. The main characteristic of Tubercular tumours, and of Tubercular deposits generally is the low state of organization which they pre-

sent, the elements found in them exhibiting an appearance indicative of an imperfect attempt at cell-development. The principal of these is what has been named Tubercle corpuscles. These are of very irregular shapes and of very various sizes. Their average diam. is somewhere about 2000 inch - Each contains in its interior one or more dots or granules. Water causes little change upon them, but they are rendered very transparent by the addition of Acetic acid. These corpuscles are always mixed up with more or less granular & molecular matter - the whole being suspended in an amorphous ^{transparent} fluid. A Tubercular tumour presents on section a greyish white or a dirty, yellowish colour; its consistence is sometimes as great as that of cheese, at other times not more than that of cream. The softer the part examined is, the greater quantity of molecular & granular matter will it be found to contain. Sometimes in a softened Tubercular deposit the corpuscles present a rounded form, and are not unlike pus corpuscles. Acetic Acid, however, never reveals in these the presence of a nucleus as in true pus corpuscles. Though Tubercle has a tendency to softening,

Fig: 24

yet sometimes it terminates in a very opposite condition, becoming transformed into calcareous masses of stony hardness, which chemical and microscopical examination show to be made up of crystals of Calcareous Salts, Cholesterine, &c. These Calcareous masses are not uncommonly found in the apices of the Lungs, in which organs and in the lymphatic glands Tubercular deposits are most common.

Independently of these Calcareous Salts, whose presence is in a measure accidental, albuminous matter is found to be almost the sole chemical constituent of Tubercle.

Tubercular Tumours are remarkable for their almost total want of vascularity. Indeed there is every reason to believe, that those vessels, which have been described as existing in Tubercle, have been only the remains of the normal vessels of the part in which the deposits have taken place.

III. Epithelial Tumors.

This name has been applied to those excrescences which grow from the surface of the skin and Mucous membrane, and which consist of a dense aggregation of Epithelium² or Epidermic cells. The cells found in these excrescences present all the characters of normal epithelium cells, being, like them when fully grown of a more or less flattened form, undergoing little change from the action of Acetic Acid, and having a tendency to adhere together by their edges. The forms assumed by these growths are various. The ordinary Corns on the feet, warts on the hands, horns, Condylomata, Cauliflower excrescences of the uterus, and what are called Epithelial Cancers of the Lip & Penis, are all referable to this head, notwithstanding the great variety in their external conformation. The causes of the formation of these growths are very various. They may be due to various local irritations, as to pressure from some part of the dress (as in Corns), or their origin may be of a constitutional nature, as in the case of Condylomata developed in constitutions tainted by syphilis. The proximate cause of their origin & growth may be said to be an abnormally in-

creased nutrition of the part, for though no vessels are found permeating the accumulated masses of epithelium, yet the true skin underneath is always found abnormally vascular, and the papillae enlarged and elongated. Their mode as well as cause of origin also varies. They may commence either as a simple warty excrescence which gradually increases in size; or as an ulcer which extends while its edges become thickened and indurated; or, owing to the obstruction of an excretory follicle of the skin, the contents of that follicle, consisting of epithelium cells, may become accumulated, & constitute a third form of these growths. The last however more properly belongs to the class of encysted tumours.

These growths as already mentioned consist for the most part of epithelium cells, which present various forms according to their stage of development. At first they are more or less globular, but as they become older, they become more & more flattened out & elongated. Often too they split up into various filaments. In some epithelial tumours the most of the cells are found to have thus split up, so as to impart to the mass.

*1. Sig. 97.

and some small cancerous nodules in the Liver of a patient, who (a year or two?) before had had a warty excrescence removed from the left angle of the mouth by Mr. Cliller (Case of Cliller in Pathologists Case Book May 4th 1850.) - At the same time, I think however, that it would be rash to draw any conclusions from any of the above circumstances as to the ^{degree of} malignancy of certain Epithelial growths, or to the relation which ^{may} subsist between them and Cancer. A more careful investigation of the subject, accompanied with accurate examinations of the tumours removed, & also of those which are reproduced, must be made - Yet still I think what has been said is sufficient to warrant & demand such an investigation,

Somewhat the appearance of a fibrous structure; this is seen in the ordinary warts of the hands, horns &c. ^{x¹}

Generally speaking, Epithelial tumours may be said to be of a very innocent nature, and to possess none of the characters of malignant growths. Some, however, are of rather a doubtful nature, and with regard to a few the above statement must be made with considerable reservation, as for instance the warty growths met with on the lower lip and penis, and which by some have been denominated Epithelial Cancer. In the case mentioned in Pl. X of the malignant (cancerous) tumours adherent to the angle of the lower jaw, the tumour which some months before had been removed from the lower lip was described by all those who saw it, as presenting all the appearances of the warty excrescences common in that situation of the body. Mr. Syrie moreover has informed me that he has frequently known the removal of warty growths from the lip followed by the formation in their neighbourhood of tumours decidedly malignant, and proving the cause of death. Dr. Gaubius mentioned a case to me, in which he found on dissection extensive Cancerous deposits in the Lymphatic glands of the Neck, ^{x¹}

IV. Fibrous Tumours.

Fibrous Tumours are those which are entirely made up of fibrous tissue. It is often very difficult to decide whether a structure deserves the name of a fibrous tumour, or is merely a hypertrophy of the normal areolar tissue of the part. Some fibrous tumours, it is true possess a well defined margin and are sometimes enveloped in a sort of cyst, and about these there can be no difficulty; Others however seem to pass gradually into the surrounding areolar tissue.

The appearances presented by fibrous tumours are very various, and of course differ according to their maturity and state of perfection, so that it will be right to consider them from the commencement of their growth. Fibrous tumours owe their origin to a fibrous exudation from the blood, which may result from injury or from some inexplicable cause. The form which this exudation assumes is no doubt in many cases influenced by the surrounding fibrous tissue of the part. The fibres which are mostly of the white variety may be developed in one of two ways. 1st by a number of granules appearing in the exudation, arranging themselves in rows, & melting together into solid

*¹ Hensle has pointed out a third mode in which fibres are developed, viz: by the fusion of granules so as to form fusiform nuclei, which elongate & split up the coagulated exudation into filaments.

*² See Aberr: XX.

filaments, as we see in examining the structure
 of semi-organized Blood-clots: i. or 2nd, by the previous
 formation of nucleated cells, which elongate and
 split up into fibres, the nuclei often long remaining
 imbedded among the fibres, or becoming elongated
 and transformed into yellow elastic fibres^{1.} Now
 it so happens that we find tumours exemplify-
 ing all these stages of development. We find some-
 times nothing but an amorphous fibrinous
 mass: Thus in some parts of certain soft fibrous
 tumours no structure (but amorphous granules) can
 be made out with the highest magnifying power.
 At other times we find nucleated cells in all
 stages of development, and these again elongat-
 ing and becoming transformed into fibres, as
 in the gelatinous polyp of the Nose^{2.} At other
 times a fibrous tumour is seen to consist of well
 formed fibres with naked nuclei imbedded a-
 mong them, with a few or without any traces
 of cells, while others again consist almost entire-
 ly of fibres without either nuclei or cells. These
 fibres for the most part resemble ordinary white
 fibrous tissue, but very often crissed up with
 them there is more or less fibrous tissue of the

But if a tumour grows only by nuclei & nucleus fibres,
it must be different from Papan which grows by means
of cells & cell fibres. *Wts* —

*1. Vogel's Path. Anat. p 216.

yellow elastic soft. Dr. Bennett has separated from true fibrous tumours, ^{into a distinct class,} those which consist of fibres infiltrated with naked nuclei, but as these are only fibrous tumours, arrested, as it were, at a certain stage of their development, such a distinction is I think unnecessary. Indeed naked nuclei are present in greater or less quantity in most fibrous tumours, for as Vogel says "In none but mature & perfectly formed tumours are these nuclei ever absent" &c. As already mentioned the appearance presented by a fibrous tumour will depend entirely on its state of perfection, some are soft, gelatinous, & of a white colour, as certain nasal polypi & the tumour described in Pl. ~~XXXVII~~, others are soft, and in their appearance bear a very close resemblance to fat; on the other hand many present a structure of great density often as great as that of cartilage, of a white or yellow colour, & presenting on section a glistening aspect with the fibres arranged in various ways. These are the described fibrous tumours of some authors. Between these different varieties all sorts of transition forms are met with, & occasionally several are associ-

*1. Observⁿ. - XXXI.

*2. Observⁿ. XIII.

ated together in the same tumours. ^{x¹} From these considerations I am inclined to believe that but little advantage can be derived from any classification hitherto proposed of fibrous tumours.

All fibrous tumours contain vessels, but in general these are few in number.

In a chemical point of view fibrous tumours consist of fibrin. A few, however, whose structure is not unlike that of the fibro. cartilages of the external ear, yield on boiling the chemical principle found in cartilage, viz. Chondrine. These have been named by Muller & Bennett Chondroid fibrous tumours.

The size attained by fibrous tumours is often considerable. They have been known to weigh 20 lbs. avoird.

Fibrous tumours may occur in any part of the body, The walls of the Uterus are one of their commonest localities. Sometimes they are developed in the trunks of large nerves or on their extremities, constituting Neuromata which often produce very uneasy sensations. A subcutaneous nervous tubercle, of whose structure a more minute description will be afterwards given, ^{x²} found to consist of very fine

filaments with nuclei imbedded among them. As fibrous tissue exists in greater or less abundance in most tumours, such for instance as fatty tumours, according to the varying amount of the other ingredients of the tumour, as fat cells, we have a gradual transition from true fibrous tumours, to true fatty tumours &c.

The same remark applies equally to the transition of fibrous into cancerous tumours; and indeed there is good reason to believe that tumours, which at one time have consisted of nothing but fibrous tissue, have ultimately become cancerous, from the development of cancer cells in the meshes of the fibrous element, & from the ordinary course of cancerous tumours. In this way it is quite possible that fibrous tumours which in themselves have little of a malignant character, may, if not removed, ultimately degenerate. But when it is stated that fibrous tumours have, as such, little of a malignant character, there is one circumstance which it is right to mention in connection with such a statement, viz, that certain fibrous tumours have a tendency to recur over & over again in the same locality after

+¹. Op. citat. p. p. 78. 87.

+². Obs. XXXVII V XLIX.

their complete removal, while they exhibit no other character of malignancy, and possess only the ordinary structure of fibrous tumours. These have been alluded to by some Surgeons under the name of Recurrent fibrous tumours. Dr. Bennett has described two such cases,¹ and two others will be found detailed in the following observations.² Both the Tumours of this nature which I examined were of soft consistence, and contained fibro-plastic & fusiform cells in all stages of development into fibrous tissue.

V. Cartilaginous Tumours.

(Sarcoma chondroides - Tumour cartilagineus &c.).
 Cartilaginous Tumours are those whose structure bears a greater or less resemblance to that of Cartilage. It is to the researches of L. Muller that we are principally indebted for accurately distinguishing these growths from all others, and separating them into a distinct class under the title of enchondromata. (Ἐγχόνδρως cartilagineus).
 The form of an enchondroma is generally rounded

*1. Op. citat: p. 124.

*2. Op. citat: p. 227.

and its external surface smooth. On making a section through its centre two different structures are found to enter into its composition - 1st a fibrous membranous interlacement arranged so as to leave a number of small loculi which are full of 2. a soft, translucent, pink or greyish substance of the consistence of a firm jelly. Microscopic examination shows the latter to consist of nucleated cells imbedded in a hyaline fluid, or more rarely in a firm amorphous matter, the tumour in the latter case being denser, and more resembling true cartilage, as in a case of Enchondroma of the Testicle mentioned by Muller¹: The relative amount of the fibrous & cellular elements varies greatly. Sometimes there is very little fibrous tissue, the tumour consisting almost entirely of nucleated cells imbedded in a hyaline matrix: at other times, the fibrous element greatly preponderates, the structure in this case more resembling that of fibro-cartilage, and constituting a transition to the true fibrous tumour. It is in the fibrous septa that the blood-vessels of these growths pass. Vogel² states that these are but few in number. But the case

detailed in Obs. XVIII and also a specimen of Euchaen-
droma in the Edinb. University museum, injected
by Mr. Goodsir, show that the vascularity is often
considerable.

Euchaenomatous may from their situation be
divided into two sorts - 1. Euchaenoma of Bones
& 2. Euchaenoma of the soft parts

1. Euchaenoma of Bones - These have been again
subdivided, according as they originate from
the centre of the bone, or merely from the sur-
face underneath the periosteum. The former
of these is the more common, but the struc-
ture in both is essentially the same. Two
cases illustrative of the former are detailed in
Observations XVIII. & XIX, & one illustrative of
the latter in Obs. XXXIX. All these occurred
in the phalanges of the fingers, where these growths
are most commonly met with. The euchaen-
oma which arises from the centre of a bone is
generally surrounded by a bony envelope, which
arises, partly from the expansion of the original
bony laminae, and partly from the formation
of new bone. Sometimes we find osseous matter
in the fibrous septa of the tumours (Obs. XVIII.).

As the tumour becomes large, however, the osseous envelope gradually grows thinner, and ultimately disappears entirely at one part; the superimposed integuments become stretched & ulcerate, and the whole tumour undergoes a process of softening and disintegration. Sometimes we find a number of Enchondromata growing in bones in the immediate proximity of one another; but a remarkable circumstance is, that however large, & however close two of them may lie together, they seldom or never coalesce, provided they be separated by an articulating surface. In other words the disease is always limited by articulating surfaces. Central Enchondroma, as already mentioned, is most common in the long bones, as those of the phalanges; on the other hand peripheral enchondroma occurs most frequently in the flat bones as those of the cranium & pelvis.

2. Enchondroma occurring in the soft parts is a rare affection. Of 36 cases of Enchondroma skulls found only 4 in the soft parts. Dr. Bennett has figured & described a peculiar form of this tumour removed from over the parotid gland, which on section was found to con-

+¹ Op: citat. p.89.

+² Ob. XVIII.

sist of small cartilaginous nodules imbedded in a moist yellowish substance like a potatoe, which microscopic examination shewed to consist of nucleated & compound granular cells. ^{x¹}

The Causes of Enchondromata are but little known. Their origin is sometimes referable to external injuries -; at other times they are congenital ^{x²}; and often no cause whatever can be assigned for their origin. Appearing, as they sometimes do, in different parts of the Body at once, they would seem in some cases to depend upon some constitutional cause.

Enchondroma is developed in precisely the same way as the primitive Cartilage of the Embryo, and it differs from common Cartilage in retaining more of its embryonic condition -

The size attained by Enchondromata varies. They are seldom much larger than an orange. Gluge however, mentions one which weighed $9\frac{1}{2}$ lbs.

Enchondromata, on being boiled, were found by Muller to yield that variety of gelatine, which he denominated Chondrine, and which he also found in the permanent cartilages of the body.

Enchondromatous Tumours have been known to exist for many years without being the seat of any

+ Muller Op. citat. p. 154.

pain, or the cause of any inconvenience, save from
 their bulk; & though, as above mentioned, when
 they attain a great size, they are liable to ulcerate
 & soften, yet still they can be said to possess but
 very few of the characters of malignancy. They never
 implicate the neighbouring tissues: thus when occur-
 ring in a bone, they never spread beyond its articulat-
 ing extremities. Moreover they never have been
 known to be reproduced after removal - Enchon-
 dromata are most common in early life, where-
 as Cancerous tumours occur more frequently in
 old people. Enchondroma also differs from Cancer
 in containing gelatine in place of Albumen.

VI Adipose Tumours.

(Adipose Sarcoma - Abernethy.) - These Tumours
 have been denominated adipose or fatty, in which
 oily matter is the prevailing element. A division
 has been made of fatty tumours, according as
 the oily matter exists in the form of globules, con-
 tained in a common external cyst (Adipose cysts⁺)

*1. Op: citat. p. 153.

or is contained in the interior of fat cells. But as the former belong more properly to the class of encysted tumours, we shall confine our attention at present to the latter class.

Fatty tumours, as thus defined, are sometimes almost entirely made up of fat cells with a very little areolar tissue, and these constitute the true fatty tumours or "*Lipoma simplex*" of Muller. In others there is a greater amount of fibrous tissue, and these have been denominated by Muller *Lipoma mixtum*, & *L. arborescens* according to the arrangement of this fibrous tissue: and they constitute a transition from the true fatty into the fibrous tumours.

Fat cells are generally of a round or oval form, or sometimes polyhedral, from the lateral pressure of one cell upon another. They vary in size from $\frac{1}{1000}$ to $\frac{1}{200}$ inch, or more or less. Each cell contains an oily fluid, which escapes in globules when the cell wall is burst, & which is soluble in Ether. Each cell also contains a nucleus, though, owing to the oily matter, this is often difficult of detection. The nucleus becomes more visible when the oily matter has been dissolved out by hot Alcohol. It is then

seen to be found, and apparently, adherent to one part of the cell wall. Sometimes the nucleus is surrounded by acicular crystals of ellagic acid arranged in a stellate manner.

Adipose tumours are remarkable for the small number of bloodvessels they contain; a statement which is borne out by the cases afterwards to be detailed.

The surface of a fatty tumour is in general very much lobulated. It is also in most instances quite distinct and easily separated from the surrounding normal fatty tissue. In a few instances, however, the two are inseparable, the tumour appearing to be a mere hypertrophy of the normal fat. In two of the cases afterwards detailed this was the arrangement, and in both of these the tumour was congenital. I am not aware, however, whether this arrangement is most common in congenital fatty tumours. In those tumours which are distinct from the surrounding fat, the surface may be isolated by the walls of numerous cells thrust together, ^{so as to form a flat surface} or the whole tumour may be enclosed in a more or less distinct fibrous cyst, the latter forming a transition to the true Adipose cysts, but differing in the only matter being contained in cells which are

4. Pls. XVII.

nourished by bloodvessels. - The substance of fatty tumours quite resembles that of ordinary human fat. The situations in which fatty tumours occur are very various. They generally, however, are found where the natural fat is most abundant as in the fold of the hip &c. This may in some degree explain their origin, for if an exudation be from any cause thrown out into a tissue where fat is already predominant, we may naturally suppose that in accordance with the law of Analogous formation, it will be also converted into fat.

The growth of adipose tumours is often very rapid, & they sometimes attain a great size - One of those afterwards to be described weighed $4\frac{1}{2}$ lbs. avoird; and the greater part of this mass had grown in the short space of six months - Sir A. Cooper removed a fatty tumour from the abdomen of a sailor which weighed $37\frac{10}{3}$ lbs. One of the largest on record is one of which there is a cast in the Museum of St. Thomas's Hospital. It weighed between 50 & 60 lbs, and was attached by a narrow pedicle to the patient's neck, hanging down as far as his knees - Sometimes many fatty tumours are developed in the body at once. Notwithstanding the great size

+¹ Sir B. Brodie's Lectures on the Pathology of Surgery, p. 273.

+² Op. citat: p. 155.

which fatty tumours sometimes attain, and the consequent stretching of the integuments over them, it is but seldom that the latter ulcerate. Sir B. Brodie^{1.} remarks that "the skin over a fatty tumour very rarely inflames & ulcerates." Sometimes, however, this will happen as in the case detailed in Pl. XVII and if this ulceration be allowed to go on, by the tumour not being removed, the health may suffer severely. But on the whole it may be safely said that fatty tumours are of a very innocent nature; and the statement of Sir A. Cooper, that fatty tumours may sometimes become malignant, (Cancerous?) I think requires confirmation.

A variety of Adipose Tumour has been described by Muller^{2.} under the name of Cholesteatoma or Laminated adipose tumour, which, though seldom met with, yet deserves notice, as it differs considerably from the above description of the more common Lipomatous fatty tumours. It is not lobulated, it is enveloped in a thin membranous cyst. Its consistence more resembles that of lard, than fat, and it presents on section a lustre not unlike that of Mother of pearl. Its chief pe-

†¹. Loc. citat. p. 155.

culiarity is that the fat cells composing it are arranged in concentric laminae easily separable from one another. The cells themselves are more commonly polyhedral than round or oval, and imbedded in their interstices are crystals of Cholesteroline. The oily contents of the cells are not so soluble in alcohol as those of the common fatty tumors - Cholesteatoma is according to Jelluller totally devoid of bloodvessels, and taking this into connection with the fact of its being always contained in a membranous cyst it would seem to be merely a sort of transition from the common fatty to true encysted tumors, differing from the latter in being composed of true fat cells.

Cholesteatoma has been found in all parts of the body. It is of very rare occurrence; and I have never had an opportunity of examining a specimen of it.

The above description of Cholesteatoma is taken from the original one of Jelluller.⁷¹

VII. Encysted Tumours.

Most of the tumours already described are in general found surrounded by a more or less distinct envelope of areolar tissue, but the peculiarity of the class of true encysted tumours is, that the contents of the cysts exist in a very low state of organization, and have no vascular or other organic connection with the walls of the cyst or the surrounding tissues.

Encysted tumours may be divided into two classes, simple & compound.

1. Simple Encysted Tumours consist of a single perfectly closed membranous cyst, containing in its interior a substance varying greatly in its characters in different cases. In an anatomical point of view we may consider 1. The structure of the enveloping cyst & 2. The nature & characters of their contents. 1. The cysts themselves vary greatly in thickness & consistence. Sometimes they are thin & semitransparent, while at others they possess considerable thickness & density. When carefully examined they are found to consist externally of a layer more or less thick of white or sometimes yellow elastic fibrous tissue. When the inner surface of this is scraped with a knife, a greater or less quan-

+¹. See Obsv. ^{no} VIII, XII. &c.

+². See Figures - 16, 68, &c

+³. Figure. 39.

+⁴. Muller's Archives 1843. p. 365.

+⁵. Obsv. XII.

tity of a whitish soft substance is collected on
 the edge of the knife.⁺¹ This when examined mi-
 croscopically is seen to consist of a number of
 nucleated cells, presenting the characters of epi-
 thelium cells.⁺² If a thin section be carefully
 made transversely through the walls of the cyst
 with a Valentini's knife, one may often succeed
 in detecting the nucleated cells on the inner
 edge of the section, undergoing a gradual trans-
 ition into the fibrous tissue on the outer edge.⁺³
 Koblrausch has described in some of these cysts
 sebaceous & spiral follicles exactly similar to
 those existing in the skin.⁺⁴ - 2. The contents
 of encysted tumours are exceedingly various in
 their characters. They sometimes contain a lim-
 pid watery fluid (Hygromatous Cysts), exhibiting
 no structure under the microscope, except per-
 haps a few scattered nucleated cells (like epithelia)
 and albuminous granules. - At other times the
 fluid is more consistent, & rather glairy, & resembles
 somewhat drained honey (Meliceritious Cysts). It
 contains nucleated cells & granules, as in the last
 case, but in far greater abundance.⁺⁵ Sometimes
 the contents present somewhat the appearance & char-

x¹. Obsw. VI.

x². Obsw. VIII. 4.

x³. This remark applies rather to the Crysts of Corn-
pound Encysted tumours.

x⁴. Obsw. XXXIII.

-istence of ferridge or gravel (Algeromatous Cysts). In one instance of this which I examined, the fluid was found to consist of oily matter & cholesteroline, with numerous small transparent cysts full of oil-globules.⁺¹ At other times the contents are not un-
like sand or putty (Stearomatous Cysts) & consist of nucleated cells, cholesteroline, & oily & albuminous granules.⁺²; or they may resemble Jelly (Colloid Cysts), or may consist of lymph undergoing or-
ganization. This semiorganized lymph is often found in the form of cauliflower excrescences project-
ing from the walls into the interior of the cyst.⁺³
Allied wth the above we often find in the contents of encysted tumours a greater or less quantity of Blood (Sanguineous Cysts) either natural, or undergoing change. In one instance afterwards related⁺⁴, the contents of a simple encysted tumour were found to con-
sist almost entirely of pure blood. The cause & mode of the extravasation of blood into such Cysts, or into the cavity of the Tunica vaginalis in the case of Haematocele, remain to be shown, but in connection with this, the facts mentioned in Observ. XXXIV. & XL of the walls of cysts contain-

+1
^ with an albuminous exudation

+2. Op: citato..

+3. Path. Anat. p. 254.

ing in the former case, recently effused blood, ⁱⁿ the latter an albuminous exudation, & exhibiting in both cases vascular points on their inner surface, is not altogether devoid of interest; and Dr. Gillespie of this city informs me that the walls of a juvenile cyste which he had an opportunity of examining possessed a sort of erectile tissue. — Some encysted tumours in addition to oily matter contain a quantity of hair, which, from the observations of Kohlrausch,^{1 2} seem to be developed in follicles like the hairs of the skin — Kohlrausch also believes that the oily matters found along with the hair, are the products of the secretion of sebaceous glands existing in the walls of the cysts. Horns, teeth, and portions of bone are also found in the interior of some cysts. Various explanations have been given to account for the presence of these bodies, some, as Cruveilhier, maintaining that they are the abortive remnants of a foetal structure, while others as Kohlrausch & Vogel^{1 3} assert that they are merely the "exuberant local growths of the epidermis of the sac." Encysted tumours may be found in almost every part of the body, but their most frequent site is immediately beneath the skin, especially of the

+1. See Observ. XXI.

+2. Observ. VI.

+3. Surgical Essays II, 236.

Scalp, eyelids, & face. Of internal organs they are commonest in the ovaries. They are sometimes congenital, & very often hereditary. ^{†1} They sometimes attain an immense size, their contents amounting to 6 or 7 pints or more ⁺².

The causes & mode of origin of Encysted Tumours are points which are very much disputed. Sir Astley Cooper ⁺³ maintained that they were all glandular follicles, which had become distended with their contents, owing to the occlusion from some cause or another of their excretory duct. This no doubt is the true pathology of a few of these tumours, as is proved by our being able to detect the opening of the excretory duct, & through it to evacuate the contents of the tumour. Encysted tumours are liable to be produced in this way on the face. Whether, however, the origin of all encysted tumours will admit of this explanation is very improbable, though at the same time this is a point, the determination of which is by no means easy. - It seems highly probable that in the majority of cases, encysted tumours are not distensions of glandular follicles by their natural secretions, but entirely new formations. As in the

*1. Another cyp^t external to this is formed by the sur-
rounding areolar tissue.

*2. The Conversion of the protein Compounds into fatty
matter is exemplified by the formation of a dipocere after
death - The oil globules, ^{also} seen in the interior of muscular
fibrillae, in fatty degeneration, may possibly owe their
origin to a process of a similar nature -

Case of other tumours, too, their origin is probably in most cases, as maintained by Vogel & others attributable to an effusion of liquor sanguinis, or extravasation of blood, the result of external injury, or some other cause. The circumferential part of the ^{resulting} fibrinous mass, whose organization is influenced by the surrounding textures is developed into the fibrous cyst, ^{the} this development being most perfect externally, while the central portion becomes transformed into the various contents of encysted tumours. This speculation is also borne out by the fact, that, the older an encysted tumour is, the less fibrinous, and the more oily ingredients enter into the composition of its contents. ^{x 2}

If, for example, we take a number of wens of the scalp, the largest will always be found to contain least fibrinous, and most oily matter (as in Obs. XXX.) The cyst itself gradually becomes more & more highly organized, and, taking on a secreting function, separates from the blood matter either similar to, or which becomes transformed into a substance the same as the already existing contents, and in this way the growth of the tumour may be accounted for. Encysted tumours may attain considerable size without ulcerating.

x⁴. Obsers. VII.

or causing any pain or inconvenience, save from their bulk. At length, however their contents gradually become more fluid - blood often is extravasated into their interior - the superimposed integuments become thinned, & at last ulcerate. From the ulcerated openings there continues to ~~escape~~ escape a very foetid and often bloody discharge. It must be remembered, however, that encysted tumours may often exist a whole life time without any of the above bad consequences manifesting themselves. - Simple encysted tumours have by no means a malignant character. They have no tendency to involve the neighbouring textures in their growth or to contaminate the lymphatic system; & if once carefully removed, they are seldom or never reproduced.

2. Compound Encysted Tumours consist of more than one cyst. Tumours have been described which constitute a sort of transition from the simple to the compound, consisting of one cyst with its interior partitioned by a number of septa of areolar tissue. Compound Encysted Tumours may consist of a cluster of cysts separated from each other by a small quantity of areolar tissue; but more commonly

*1. Loc. citat: p. 166.

*2. Med: Chir: Trans: Vol XV. pt. 2.

they are associated with some other form of tumour, constituting the class of tumours which have been described by Muller under the name of Cystosarcomata.¹ The former have been made the subject of particular enquiry by Dr. Hodgkin,² who divides them into 2 varieties, 1 aggregated clusters of simple cysts & 2. cysts which contain others projecting into their interior, the younger cysts being attached to the walls of the parent by pedicles. - The contents of these cysts are in general clear fluid; at other times this is more or less opalescent, while not infrequently the contents are solid, and consist of a fibrous tissue mixed up with nucleated cells. - The Cystosarcomatous tumours of Muller consist of cysts whose contents vary in different cases like those of simple cysts, and which are imbedded in the substance of some of the other forms of tumour already described, such as a fibrous or Carcinomatous tumour. Muller distinguishes three different forms of cystosarcomatous tumours - 1. Cystosarcoma simplex - in which the cysts have each a "distinct membrane, the inner wall of which is simple, smooth, or at most beset with a few vascular nodules." 2. C. proliferum

in which the cysts contain "younger cysts in their interior which are attached to their walls by pedicles" - & 3. C. phyllodes, in which the cysts are ill-defined, & often without a distinct proper membrane, & whose interior is more or less filled up by cauliflower like excrescences springing from their inner surface - (these excrescences being found on microscopic examination to consist of hyphæ undergoing a transformation into fibrous tissue -)

The malignant or non-malignant nature of a cystosarcomatous growth entirely depends on the nature of the tumour in which the cysts are imbedded. We have no reason to believe that the presence of cysts increases the malignancy of tumours otherwise innocent -

The above constitute the most important classes of tumours properly so called, but in addition to these several others may be briefly alluded to.

Melanotic Tumours.

These can hardly be said to be a distinct class,

+¹. Path: Anat. p. 236.

+². Muller's Archives 1836.

for any of the above tumours, in the substance of which dark pigment is deposited, may be said to be melanotic. The pigment is of a dark brown or black colour, and exists in the form of granules either free or contained in the interior of the cells of the tumour. From this it will appear* that the degree of malignancy of a melanotic tumour must differ greatly in different cases.

Gelatinous Tumours.

have been described by Vogel^{+1.} as a distinct class. They are certainly not of frequent occurrence, and I have never had an opportunity of examining them. They consist of a viscid colloidal substance, perfectly transparent, & presenting an amorphous appearance under the microscope. Muller has described a gelatinous tumour under the name of Collome, whose substance was composed of grey globules with scanty bundles of fibres and vessels, & scattered through the whole an immense number of crystalline needles.^{+2.}

Fibrinous Tumours.

A class of tumours have been described under this name by Velpeau. They consist of discoloured

7. Bennett on Carcinoma & Canceroid Growths p. 197.
Velpeau "De la Carcinome dans tous les organes."
Thèse de Carcinome. 1832.-

clots of extravasated blood. They are of a yellowish colour, & on microscopic examination are seen to be made up of fusiform & compound granular cells, altered blood corpuscles, molecules & granules. These Tumours are said to be not uncommon in the Alamina. &c.

Saphonoma.

This name was given by Heule to a form of tumour, which he has described. To the naked eye it appears to consist of numerous filaments running parallel to one another, which on microscopic examination are found to be tubes loaded with granular matter. The tumour described in Pl. XXXV. seemed to be somewhat of this nature. Many of the tubes in this case were quite visible to the naked eye, fully $\frac{1}{2}$ inch in diameter. They contained in their interior granules & small corpuscles, whose characters will be detailed more at length hereafter. See Page. 180.

Vascular Tumours.

are those which consist of dilated bloodvessels with more or less areolar tissue. It may be a large vessel which is dilated, constituting an

Aneurism in the case of an Artery, or a Varix in the case of a Vein, or the tumour may consist of a great number of vessels, as in the true erectile tumour. Erectile tumours seem to consist of the small vessels or Capillaries of a part which have become greatly dilated. Aneurism & Varix are most common in old people whereas erectile tumours are almost entirely confined to early life.

Oseous Tumours.

Bony projections from the surface and substance of the bones of the skeleton, constituting the affections known to Surgeons under the name of Excrescences, Osteosis &c. Hardly deserve the name of tumours. They must be distinguished from the calcareous deposits which sometimes take place in the soft parts of the body, and sometimes in the substance of tumours - the former presenting the structure of true Bone while the latter are only unorganized concretions. The former may be regarded as local hypertrophies, rather than tumours in the proper sense of the word -

Observations.

[^] She stated that it had only been growing for 9 months.

Observation I.

Cancerous Tumour of the Mamma. Excision - Cure.

Mrs _____ a married lady from England about 40 years of age, of rather spare habit, and very nervous temperament was operated upon by Mr. Syme on the 10th of Decemr. 1850, on account of a tumour of the left mamma. The tumour was situated at the upper and inner part of the gland, and, as felt through the integuments was of a circular form, and occupied a space about equal to that of a Crown piece. Its consistence was very hard. There was no enlargement of the Axillary glands, and the patient's general health was good. She occasionally suffered a good deal of pain in the Tumour. - Chloroform was administered, and when she was fully under its influence, Mr. Syme made an elliptical incision 3 inches long through the integuments, and dissected out the whole of the mammary gland, including the tumour and a portion of the surrounding fat. Several vessels were tied, and the edges of the wound were then brought in contact by sutures. She had no bad symptoms after the operation, and returned to the country at the end of two or three weeks, the wound having quite cicatrized.

Description of the Tumour. - The whole of the excised mass weighed a very little more than 4 oz. avoird. It consisted of an elliptical portion of the skin 3 inches long, & $\frac{3}{4}$ in. broad.

at its middle where the nipple was situated. Between the Mammary & Skin was a thin layer of fat. The Mammary was not at any part abnormally adherent either to the skin or the subjacent muscle. On examining the gland both externally, and by section, it presented over the greater part of its extent a structure perfectly normal. At its upper inner position there was a tumour of very hard consistence imbedded in its substance. It was of a circular flattened form. (diam. = $1\frac{1}{2}$ inch. Thickness = $\frac{1}{2}$ inch). Its surface was somewhat uneven. On making a section through its centre, it grated under the knife. The surface of a fresh section presented a greyish white colour with a slight tinge of pink. On squeezing it, numerous small drops of thick creamy fluid issued from it. When this fluid was washed away, the surface of the section was found to be studded with peasy points about the size of a pin's head, and perforated in the centre. These were found to be continuations of the milk ducts into the morbid mass. Along the edge of the tumour next the nipple were two or three hard nodules about the size of millet seeds, presenting a structure similar to that of the larger deposit, but separated from it by sound mammary. There was also another deposit of the same nature, about the size of a large pea, in the substance of the gland fully 1 inch from that first described.

* Surely there must be some mistake here in estimating the magnifying
power -

The fluid squeezed from a section of the last was of a pinkish grey colour in place of white.

Microscopic Examination.- A portion of the Creamy fluid from the large deposit was placed between two glass plates & examined under the microscope (200 micar^x). On adjusting the focus an immense number of transparent nucleated cells came into view. The largest had a diameter of about $\frac{1}{600}$ inch. Fig. 1. others only $\frac{1}{1500}$ or less. The shape of the cells was also very various. Very many of them presented a globular form, with the nucleus situated at one side, and apparently attached to the cell wall, with a quantity of fine greyish granular matter between the nucleus & cell wall. Others of the cells were elliptical, & a few of them flask shaped. Some of the cells contained a single and others a double nucleus. The nuclei were for the most part more or less globular ($\frac{1}{2000}$ in.) & contained a nucleolus reflecting light. Several nuclei might be seen floating about without any cell walls. Acetic Acid rendered the cell wall first more transparent & then dissolved it, while it rendered the nucleus only more distinct. One or two large mother cells $\frac{1}{360}$ in. were seen enclosing three or four nuclei apparently becoming themselves transformed into cells. Mixed with the above cells were several Compound granular Corpuscles a considerable quantity of granular matter & a few oil globules. The

whole appeared to be suspended & floating in a transparent structureless fluid. On examining a thin section of the tumour made with a Valentini's knife, it was found to consist of a stroma of white fibrous tissue arranged in such a manner as to leave small empty spaces enclosing the cells & other constituents of the milky juice. Fig: 2

Remarks. - This Tumour afforded a well marked example of Scirrhous Cancer - consisting of a fibrous stroma with cells infiltrated through its substance. The permanence of the milk ducts in the midst of the morbid deposits confirmed the statement of the patient as to their rapid growth. - These deposits seemed to be undergoing a process of softening, both from the great amount of milky juice, and of cells mixed with oleo-albuminous granules, as shown by microscopic examination; so that it is highly probable, that, if not removed, the disease would have made rapid progress.

Observation II.

Cancerous Tumour of Mamma. Excision - Reappearance of disease in cicatrix - Re-excision - Cure.

History. Margaret Seil aet: 48. a widow was a patient in the Royal Infirmary from the 15th to the 29th of July 1849, at which time Mr. Syre ^{excised} her right mamma on

1. Hospital Case Book.

account of a "hard" tumour involving its substance. This tumour she had only observed three months before. She said it was about the size of a closed fist, and at times was the source of considerable pain. Before the wound had completely cicatrized, she observed a small lump at its inner and upper extremity, which ever since has been gradually increasing in size. At the date of her second admission into the Infirmary, it measured 3 inches transversely, & 2 from above downwards. It had rather a nodulated surface and a very hard consistence. There was no enlargement of the glands in the axilla, and the patient was in the enjoyment of good health. August 27th Today after the patient was brought under the influence of Chloroform, Mr. Syme making an elliptical incision over the tumour, removed the whole of it along with some of the surrounding fat. The wound ^{did not} heal by the first intention; but it had almost completely cicatrized by the 19th of September when the patient was dismissed from the hospital without any threatening of a return of the disease.

Examination of Tumour after removal. The diseased mass removed weighed $1\frac{3}{4}$ oz. It consisted of the tumour itself an elliptical portion of the superimposed integuments, & a small quantity of adipose tissue. Anteriorly, the tumour

presented a Convex Modulated Surface which was very intimately adherent to the Skin. The posterior surface was flat, & separated from the fibres of the pectoralis muscle by a small quantity of areolar tissue. On making a section through the centre of the tumour, it offered considerable resistance and grated under the knife. The surface of a fresh section was smooth and of a greyish white colour: On scraping it with the edge of a knife, or on squeezing the tumour between the fingers, a small quantity of a milky juice was obtained. A small drop of this was placed between two glass plates, and examined under the microscope. It was found to contain nucleated cells, naked nuclei, oily and albuminous granular matter, & a few compound granular cells. The nucleated cells ^{Fig. 3.} were of an oval form, the long diam. being about $\frac{7}{50}$ inch. The cell wall was very delicate & transparent, & completely disappeared by the action of Acetic Acid. Each contained a rounded or oval nucleus containing in its interior two or more transparent granules or nucleoli. The diam. of the nuclei was about $\frac{1}{700}$ inch. Acetic acid produced no change on them. On making a thin section of the tumour with a Valentini's Knife, and placing it under the microscope after the addition of a drop of Acetic Acid in order to render it more transparent it presented an appearance represented in Fig. 4. ^{Fig. 4.}

a dense fibrous stroma composed partly of white and partly of yellow elastic ^{fibrous} tissue, and arranged so as to leave loculi or compartments, which were full of naked nuclei, cells, &c. the same as those already described as entering into the composition of the milky juice.

Remarks. The examination of the above tumour left no doubt as to its Cancerous nature; belonging to that form of Cancer denominated Scirrhus. The appearance of a fresh section, the milky juice which could be separated from it, & the microscopic examination, showing that it consisted of nucleated cells suspended in an amorphous fluid, and infiltrated through the areolae of a fibrous stroma, all indicated a Cancerous tumour. This conclusion as to its malignant character is also confirmed by the fact of the appearance of a second tumour before the wound resulting from the removal of the first had completely cicatrized. The first tumour I had not an opportunity of examining, but it probably possessed a similar structure. The milky juice was far less abundant than in the tumour last described, & it contained far less oily and albuminous particles.

Observation III.

Cancerous Tumor of Lower Jaw. Removal. Cure.

W. — M. — aet. 57, Labourer, was admitted into the Royal Infirmary on November 4th 1850, under the care of Prof. ^{Ho}lyne. Stated that he had been perfectly well until 10 weeks before admission, when from a violent concussion in a railway carriage, his lower jaw received a severe blow from another man's head. Two of his incisor teeth were knocked out, & two others were so loosened that they had afterwards to be removed. The surrounding soft parts were very severely lacerated. A few days after the accident a swelling began to appear in the hollow beneath the tongue attended with great pain. This was lanced by a surgeon, and a dark bloody matter escaped. This gave great relief to the pain, but the swelling continued, & in a few days burst, discharging a thick purulent matter. On admission the four lower incisor, and the right Canine teeth were gone. Projecting beneath the point of the tongue was a tumour about the size of a plum, evidently attached to the alveoli of the incisor teeth. It was of soft consistence so as to retain the impression of the point of the finger; its upper surface was very irregular, and threw out a fetid discharge of a dirty greyish colour. The jaw

for about 2 inches on either side of the symphysis and as far down as the lower margin seemed somewhat thickened. He complained of no pain in the tumour, but its situation and the foetid odour of the discharge made him anxious for its removal. Various Caustics had already been tried, but without any benefit. There was no enlargement of the glands of the neck, and with the exception of the tumour, the patient was in the enjoyment of perfect health. Nov: 16th Today the patient was brought under the influence of Chloroform. Mr. Syme then made an incision from the middle of the lower lip to the point of the chin, & dissected on both sides the soft parts from the bone. The symphysis with two inches of the horizontal ramus on either side was then removed by means of the saw & bone-pliers. The two flaps of the chin were secured together by means of common twisted sutures, & to prevent the tongue slipping back its point ^{was} secured to the chin by a thread. Nov: 18th Thread became loose by which tongue was tied forwards, yet patient could swallow, & had no difficulty in controlling its motions. Nov: 20th Sutures removed. Dec: 9th Today the patient was dismissed cured. The ends of the jaw were covered with a soft granulating substance. They were quite in their natural position, & could be moved freely up and down. No symptom of return of the disease.

*' When the tumour was enucleated away from the bone, the excavation hollowed out in the latter was found to extend down to within $\frac{1}{3}$ inch of its lower margin.

Examination of the Tumour after removal - It was of the size of a plum, & sprung from the alveoli of the front teeth of the lower jaw - On dissecting the tumour from the bone, no trace whatever of the alveolar ^{cavities} could be seen, but along the upper margin of the jaw there was a sort of cup shaped cavity, bounded before & behind by the anterior and posterior laminae of the bone. which were separated from one another fully $\frac{4}{5}$ inch^{x1}. To the bottom and sides of this cavity the morbid structure under consideration was attached. The consistence of the tumour was very soft, so that it could be easily impressed with the finger. At its upper surface it was of much softer consistence than where it was attached to the jaw - At the left extremity of the cavity in the jaw there were a few drops of thick puriform fluid of a reddish brown colour. On section the tumour exhibited a smooth surface of a pinkish grey colour, from which a juice of a dirty pink colour exuded on pressure.

Microscopic Examination - On examining microscopically a drop of the fluid scraped from the surface of a freshly made section, there were found in it the following elementary constituents. 1. Nucleated cells of various sizes and in all stages of development - Some of these were Fig: 5. so large as to have a diam^r measuring fully $\frac{3}{100}$ in.

Many of these cells contained only one nucleus - ($\frac{1}{1500}$ in.) in others the nucleus was seen splitting into two, in others there were two distinct nuclei, while a few cells were seen loaded with nuclei. The nuclei were for the most part of a rounded form, and contained in their centre one or more nucleoli. Several large mother cells were seen enclosing smaller cells in their interior, with a little granular matter between the different cell walls. The cells were mostly of a rounded or oval form - others were pyriform, & a few still more elongated. In a few the cell wall was perfectly transparent, but most contained more or less fine granular matter. Acetic Acid rendered them still more transparent, & if strong dissolved them entirely, leaving the nuclei unaffected. The cells were most abundant in the softest portions of the tumour & in the pyriform fluid. 2. A number of naked nuclei similar to those enclosed in the cells. 3. Compound granular cells - A few of these were seen principally in the pyriform fluid - Many of the large nucleated cells were also loaded with granular matter. The above elements were mixed up with 4. a quantity of molecules & granules, & 5. a few scales of cholesteroline. Near the attachment of the tumour to the bone there was a quantity of mineral matter in a granular form, which was dissolved by Distilled Fig. 7.

a (Valentin's) section of the most consistent portion of the tumour, was found to consist of a fibrous stroma of which the filaments were very fine. In the meshes of these filaments were enclosed the cells, &c. already described. At one or two places the filamentous tissue was seen disposed in a sort of concentric circles. Fig. 6.

Remarks. The microscopic examination of the above tumour left no doubt in my mind as to its cancerous nature. All the ordinary elements of cancer were present - a fibrous stroma saturated with a milky juice, which was loaded with nucleated cells and free nuclei. Its rapid growth also favours such a conclusion. Two things are worthy of notice with regard to it - 1st Its mode of origin & 2nd its situation - 1. Its mode of origin. The patient attributed the growth of the tumour entirely to the blow which he had received on his jaw. He asserted that there was no trace whatever of a swelling in the part before he met with the injury - It is possible that he may have been mistaken, that the tumour may have begun to grow before he met with the accident, and that the latter only hastened its development: yet the fact of the tumour being attached principally to the inside of the alveoli, which had been by the accident deprived of their teeth,

*1. Diseases & Injuries of Bones. transl. by Syd. Soc. p. 416.

renders this improbable. Blows and other external injuries are no doubt the frequent causes of the origin of simple or canceroid tumours, which may ultimately become malignant, but the peculiarity in this case is the fact of an injury causing the formation of a tumour, which from its very origin seems to have been ^{of a} malignant nature. Dupuytren⁴¹ has recorded the particulars of a case very similar to the above, in which the symphysis of the lower jaw was removed on account of an osteo-sarcomatous tumour, which the description would indicate to have been decidedly malignant. In this case also the man attributed the origin of the tumour to a blow which he had received on the chin three months previous to the operation. In this case an operation very similar to the above was performed, which was temporarily successful, but the man died six months afterwards from a return of the disease.

2. Situation - Springing as it did from the ^{gumms} alveolar processes of the jaw, this tumour must be regarded as an Epulis, from its malignant character is not devoid of interest. Many practical authors have remarked how rarely a tumour of the gums is malignant. Liston has stated in his experience that a tumour of the gums is in general not malignant, but apt to degenerate. He, however, distinguishes from the ordi-

*1. Lister's Practice of Surgery p. 225.

*2. on Cancerous & Canceroid growths.

many epulis "a soft tumour of the gum, rapid in its progress, broken in its surface furnishing fetid & bloody discharge, which is sometimes, it is said, met with." * This description quite coincides with that of the tumour under consideration. It originated probably in the gums, yet ultimately the osseous texture of the jaw was involved to a great extent.

Cholesterine is not of very frequent occurrence in Cancer though it is sometimes met with - Dr. Bennett at page 38 of his observations * mentions his having found Cholesterine in Cancer of the mesenteric glands.

Observation IV.

Cancerous Tumour of Testicle - Extirpation of Testicle - Cure.

^{HISTORY}
Joseph Hartley, æt: 36 a weaver was admitted into the Royal Infirmary on the 4th of October 1850 on account of a tumour of the right testicle under the care of Dr. Dundas. The patient stated that 10 months before, this testicle began to increase in size & to be the seat of great pain. Disturbances (various means adopted for his relief, leeches, poultices, a mercurial course &c. this swelling went on gradually increasing) - On his admission the tumour possessed a solid consistence except at its upper part where there was a pretty distinct fluctuation. A puncture was made into this with a lancet, & a small quantity of

a clear fluid evacuated. The whole tumour was about the size of a Cocoa Nut. After his admission leeches were applied to the tumour & warm fomentations. The application of these did not cause any diminution in the size of the tumour, and was followed by considerable enlargement of the glands in the groin. Decemb: 20th To day the patient was brought under the influence of Chloroform & Dr. Dunscombe removed the testicle in the usual manner. A few vessels were tied, & the edges of the wound kept in apposition by sutures. The wound was dressed with simple water-dressing. The ligatures came away on Novemb: 25th & about a fortnight after the operation the wound having quite cicatrized, the patient was dismissed cured. The swelling in the groin having greatly diminished in bulk.

Description of the Tumour. This was about the size of a man's fist - & weighed about 9oz. - At its upper part there was a distinct cyst capable of holding about $\frac{1}{2}$ ij of fluids, its walls were collapsed. - The form of the tumour resembled somewhat that of an egg. On making a section through its centre from above downwards, the greater part of its bulk was found to consist of a greyish white substance of rather firm consistence, but exuding on pressure an abundance of a white milk like juice. This was totally different from the natural structure of the testicles.

which examination showed to be almost completely obliterated. - At the lower part of the section there was a deposit about the size of a half-crown piece, of a substance having a brownish pink colour. This substance in the section presented a triangular form. Two sides of it were surrounded by the other tissue of the tumour, while the third formed part of the general external surface. The brownish pink substance was of much softer consistence than the grey, approaching that of brain, and from one or two parts of its surface a ^{pinkish grey} puriform fluid could be squeezed out. -

Microscopic Examination - A drop of the milky juice collected on the edge of a knife from the more solid portion of the tumour exhibited in the field of the microscope an appearance represented in Fig. 8. There were numerous Fig. 8. transparent globular bodies varying in size from $\frac{1}{2000}$ to $\frac{1}{400}$ in. or less. The outline of these was more or less round. Each contained in its interior one, two, three, or more minute round globules (or nucleoli), with a little granular matter. Acetic Acid seemed to have little effect on these bodies - Mixed up with them there was a quantity of globules & granular matter, & a few compound granular cells. In a section made with a Valentini's Knife, these elements were seen grouped in masses, & imbedded in the meshes of a stroma of white fibrous tissue. In the Fig. 10.

Alsew, on Cancerous & Canceroid Growths p. 176.

soft brownish pink part of the tumour there were found globular bodies exactly similar to those just described. but there was more granular matter & more granular cells than in the more solid part. In this portion too, a few of the globular bodies were found surrounded by a distinct transparent cell wall, & one cell which was of a pyriform shape & had a diam^r of 500 μ was seen containing five of the globular bodies Fig. 9. in its interior.

Remarks. Careful examination of the above tumour convinced me of its Cancerous nature. From the almost total absence of cells, & from the greater part of the tumour being composed of naked nuclei & fibres, it may be thought to have been more proper to have referred it to that class of tumours which have been denominated by Dr. Bennett "Fibro-nucleated." But there are two circumstances which have induced me not to do so. In the first place in none of the three cases of this disease detailed by Dr. Bennett could a milky juice be obtained by pressure from a fresh section of the tumour; whereas in the present case the milky juice thus obtained was very copious. Again the nuclei in this tumour, differed greatly in their appearance & arrangement among the fibres from those found in Fibro-nucleated tumours. Moreover, though

⁴ By referring to the figures it will be seen, that the elements above described as nuclei are not unlike bodies often met with in tubercular deposits, but the general physical characters of the tumour, and the fact of many of these bodies being enclosed in distinct cells contraindicated every notion of the tumour being tubercular.

The great majority of the nuclei were devoid of any cell wall, yet a few cells were found containing nuclei exactly similar to those which existed free. The enlargement of the glands in the groin at the time of the operation was in all probability produced by the irritation of the tumour of the testicle, for it disappeared on the removal of the latter. The cyst found at the upper part of the tumour seemed to be the remains of the tunica vaginalis. Fluid in the Sac is not an infrequent concomitant of Cancer of the testicle as well as of simple Sarcoma. The fluid was of a pale straw colour, but I had not an opportunity of examining it more minutely.

Observation V

Cancerous fungous Tumour of integuments over Sacrum. Excision - Reappearance of Tumour - Cancer of Lungs - Death -
 Bernard Lindor aet: 26 a Labourer was admitted into the Royal Infirmary under the care of Mr. Syne on the 18th of October 1850, labouring under a fungous tumour situated over the Sacrum. He stated that 5 1/2 years before a small hard wart had appeared in the site of the present tumour. For three years there was not much pain in this, but as the size increased, so also did the pain - He was admitted into the Infirmary last day, the tumour being then about the

size of a turkey's egg, & having at its summit an ulcerated bleeding surface. Mr. Syre removed the tumour by an elliptical incision through the integuments about a fortnight after his admission. At the end of eight weeks the wound had quite cicatrized, & he was dismissed from the hospital - eight weeks before his second admission a small soft hump appeared at the lower angle of the old cicatrix. This rapidly increased in bulk and at the date of admission it was as large as a hen's egg, of somewhat conical form with a truncated ulcerated summit. For 10 or 12 weeks before his admission he had been complaining of occasional severe stitches in the right side of his chest, & for 6 weeks he had been liable to hemoptysis. Some days after his admission the patient was seized with a severe pain in the lower part of right side of chest, accompanied with cough, dyspnoea, & very rapid pulse (125.) There was dullness on percussion, tubular respiration, & increased vocal resonance over a space of several inches at the lower right side of chest. Moist râles heard over rest of chest. These symptoms went on increasing notwithstanding the remedies employed. In his expectoration there was sometimes pure blood, at others it was only tinged with blood. Once or twice he was observed to spit up cylindrical masses of coagulated blood apparently casts of the bronchial tubes - The expectoration was examined with the microscope; it contained only blood corpuscles,

The Tumour over Sacrum rapidly increased in size, and
there was often considerable discharge of blood from its surface

granular matter, and Epithelium scales. The Patient daily grew worse. His pulse still continued rapid, but soft & compressible. He became subject to diarrhoea, & nocturnal perspirations, his appetite gradually failed, & he became emaciated & so weak that he could not sit up in bed. His countenance assumed a fallow yellowish hue. The dullness of the chest on percussion spread, & could be made out at various isolated spots over its surface. The cough was of a peculiar ringing character. He became daily weaker & died on the morning of Dec. 9th. Description of the tumour over Sacrum. After death this was removed by a Scalpel along with an elliptical portion of the surrounding integuments. The muscle beneath the tumour was perfectly sound & free from the disease. In fact the skin and a very small amount of the subcutaneous areolar tissue were alone involved. The tumour at its base was of an oval form (covered a space about equal to the size of a halfpenny). The skin could be traced for $\frac{1}{2}$ inch ^{over external surface of tumour} all round, but gradually became lost in the disease. From the base the tumour gradually expanded outwards till it became so large as to have covered the palm of one's hand. Its upper surface was very irregular, of very soft consistency, & of a black, & dirty bluish colour. It emitted a very foetid odour, & was evidently in a gangrenous condition. On cutting from above downwards through the centre of the tumour, the tissue of the latter at its base presented a striking contrast with that near the upper surface.

* On scraping its surface with a knife a small quantity
of a cream coloured juice was obtained.

From the surface down through one half the thickness of the tumour it was of a dirty greyish or black colour, while that of the lower part of the tumour was of a beautiful cream white colour. The two passed gradually into one another. The white substance was not unlike Brain in colour & consistence. It was observed to have a tendency to split up in a direction perpendicular to the ^{st.} Minute Blood vessels running in a similar direction could be seen with the naked eye. On examining a minute particle of this white substance under the microscope it was found to consist almost entirely of an infinity of cells. By far the greater number of these were elongated & fusiform their average length being $\frac{1}{200}$ in, & breadth at the centre $\frac{1}{2000}$ in. Many of the cells seemed very much twisted upon themselves, an appearance which was probably produced by pressure between the glass plates. At the centre of each cell was a nucleus, & between the nucleus & cell wall a little fine granular matter. The nucleus Fig. 11. was of an oval form ($\frac{1}{2000}$ in by $\frac{1}{1500}$ in.) & very distinct in comparison to the cell wall. Each ^{nucleus} contained in its interior a few granules, & some a distinct nucleolus. In some cells there was a double nucleus. Along with the above cells were a very few round & oval cells: these were more abundant at some parts of the tumour than at others. Here & there were a few hexagonal epithelial scales adhering)

by their edges. There was also some granular matter, which became very abundant near the gangrenous portions of the tumour. The fusiform cells composing the white substance were arranged side by side with their long axes running principally in one direction, so that a thin section when examined with a low magnifying power presented the appearance of a fibrous tissue with numerous nuclei imbedded among the fibres - It was this that imparted the fibrous like appearance to the white substance as seen by the naked eye - There was no true fibrous tissue in the tumour. The small vessels in the white substance of the tumour were seen to run in the long axis of the fusiform cells in their neighbourhood, but ^{the blood} was separated from the cells by a distinct basement membrane.

The Lungs on examination, were found to contain large deposits of a morbid tissue exactly similar to the white substance of the tumour we have just been describing. In the R. Lung these were most abundant, & one mass near its base was as large as two fists - The cells in these masses presented the same fusiform appearance as those in the tumour over the sacrum, but in addition to these cells, the morbid masses in the Lung were found to be traversed with bands of true fibrous tissue, the filaments of which were exceedingly delicate. This however was by no means abundant.

Remarks. The tumour whose description we have just given is peculiarly interesting in several points of view. It was undoubtedly Cancerous, & of the nature of Enccephaloma. Its history, & the existence of morbid deposits exactly similar in the Lungs, to such an extent as to cause death confirm our opinion arrived at by an examination of its structure. It seemed to have originated in the areolar tissue beneath the skin, & considering its size, it is remarkable how little it had involved the surrounding tissues, the subjacent muscular tissue being perfectly free from the disease. It must have at an early period become blended with the skin, which at the period of his admission was stretched over its surface & ulcerated. From this ulcerated surface there soon protruded numerous fungoid Cauliflower granulations, which appeared to be extremely vascular, bleeding profusely on the slightest provocation, as on the removal of the piece of lint with which it was dressed, the tumour at this period presenting all the characters of that condition of Enccephaloma commonly denominated "Fungus hæmorrhoides." These granulations showed little tendency to become organized - On the contrary for some days previous to the patient's death, the surface of the growth appeared to be undergoing a process of destruction, as indicated by the dark colour it assumed, the fetid odour it emitted, & the

Small pieces which became detached from its surface. As regards the proper substance of the tumour, which at the base still remained undestroyed, the most remarkable fact ascertained by its examination was that of its being entirely composed of cells. No fibrous structure whatever could be ascertained to be present after the most diligent examination. (See Page 26) In the similar deposits in the Lungs bands of a very fine fibrous tissue were found pervading the masses of cells, but whether these constituted part of the morbid deposit, or were only remnants of the normal tissue of the lung it is impossible to say. The form and arrangement of the cells composing the tumour were also well worthy of notice. The form of the cells refers the growth to that species of *Encéphaloma* which J. Muller describes as characterized by, caudate or fusiform cells. These elongated cells he speaks of as undergoing a transformation into fibres, but certainly the examination of this tumour, though the cells were arranged with their long axes running principally in one direction, lends no weight to such an hypothesis. So far as I am aware, it has not yet been shown that cancer cells are ever transformed into fibrous tissue. The bloodvessels pervading the mass were separated from the cells by a distinct though almost structureless wall. They bore a close resemblance to the small capillaries of the

brain. The Epithelium scales, several of which were seen adhering by their edges, were evidently derived from the skin.

Observation VI.

Alterations in air back containing 140 ounces of fluid. Punctured.
 Injected with Iodine.

Mr. M. ——— upwards of 60 years of age, consulted Mr. Sympson in the beginning of November 1850 in reference to an immense tumour on his back, so large that it could be seen projecting from beneath all his clothes, & gave his back the appearance of being bent. This tumour had been growing for 46 years, and its origin was attributed to a blow which he had received on the part, by being thrown on his back while playing at leap frog. The tumour extended from the lower part of the lumbar to the middle of the thoracic region. It had a fluctuating consistence throughout, & on tapping it the impulse was distinctly conveyed from one side to the other. On 19th of Novemb^r. Mr. Sympson introduced a small trocar into the most dependent part of the tumour. A few drops of a thick yellowish fluid escaped, through the cannula, & by introducing a probe about $\frac{1}{2}$ an inch, but the consistence was such, that no more would come away. The cannula was therefore withdrawn, & with a blis-

tory, an incision $\frac{1}{2}$ inch long was made into the tu-
 mour. Through this opening the contents of the tumour
 were rapidly evacuated & amounted to $\frac{1}{4}$ of $\frac{1}{2}$. The walls
 of the cyst were at first allowed to collapse of themselves,
 but when the matter was nearly all out pressure
 was employed in such a way as to exclude the en-
 trance of air - a pad of lint was then placed over the
 wound & a broad flannel bandage secured the body.
 After some days there was a slight reaccumulation of fluid
 in the cavity. This was drawn off & $\frac{1}{2}$ of pure Iodine of
 Iodine injected, and after some days more a whole fluid ounce
 of Iodine was thrown in. This caused considerable retri-
 ction of the cavity, but no bad symptoms whatever. The
 swelling after a few days began to diminish; and though there is
 still considerable fullness in the region of the tumour, the size is nothing to the original. ^(Feb. 7/1857.)
 Description of the fluid removed. - This amounted to $\frac{1}{4}$ of fluid
 ounces. Its colour was a dirty yellow, in this respect, as
 well as in consistence resembling ordinary pus.
 But what gave it a very remarkable appearance
 was that there were suspended in it an immense
 number of translucent gelatinous looking bodies, of
 a more or less rounded form, and varying in size from
 that of a cherry to one almost imperceptible to the na-
 red eye. On microscopic examination the yellow portion
 of the fluid was found to be composed of innumerable

⁴¹
Dr. Bennett in his Observations page 195. speaks of the Cholesteo-
tome of Muller, as consisting of granular fatty matter com-
bined with crystals of Cholesterine, and it was this which in-
duced me to refer this tumor to that class. I afterwards
ascertained that Muller's own description of Cholesteotome is
considerably different, as will be seen by referring to pages 58-59
of this thesis. It presents, he says a pearly lustre, and
the oily matter, is not in the granular form, but contained in polyhedral ^{cells.}

globules of oil of very various sizes, mixed up with scales of cholesteroline, some of which measured fully $\frac{1}{20}$ inch in diameter. The oil globules were readily dissolved by the action of Sulphuric ether. Along with the above there were a few pus Corpuscles, with the characteristic nuclei, but these were by no means abundant in comparison with the oily matter. One of the smallest of the gelatinous bodies when magnified was seen to possess a distinct external cyst, containing a quantity of minute globules, of an oily nature, and which escaped on rupturing the cyst by pressure. The cyst itself possessed considerable thickness, but seemed perfectly structureless. In some of them there seemed something like a fibrous structure, an appearance, however, which more careful examination showed to be owing to creasing of the cyst by its being pressed between the glass plates. (See fig: 13)

Remarks. - The above constitutes a good example of that class of cystic tumours, which Muller has designated by the title of Cholesteatoma^x, being ^{almost} entirely composed of scales of Cholesteroline combined with an immense amount of oily granular matter. It contained no Epithelium scales. From the existence of a few Pus Corpuscles the cyst seems to have begun to suppurate. Altogether the case is well worthy of attention

from the lengthened duration of its growth, the great size which it had attained, and the beneficial effects of the treatment employed.

Observation VII.

Ulcerated Encysted Tumour of Scalp. Removal - Cure.

Agnes B — act: 76. from Falkland applied for admission into the Royal Infirmary on the 26th of Decemr. 1850 on account of an ulcerated tumour on the left occipital region of the scalp. She was a tall spare woman, and said she enjoyed good health. The tumour alluded to she first noticed when she was only 20 years old. It was then about the size of a small pea. Every year it had increased in size, but of late more rapidly than at first. On admission it was about the size of a turkey's egg. At first she said its consistence was pretty firm, but two years before admission it began to soften, and about six weeks before ulcerated at two different parts of its surface. Since the ulceration it had continued to throw out a very fetid puriform discharge, and four times a great quantity of blood. In the immediate vicinity of its lower margin there was another encysted tumour of the size of a cherry with its surface entire & dotted over the surface of the scalp were a number of smaller ones about the size of peas or less. Since the

large tumour had begun to soften she had had a good deal of pain in it. Nov. 28th Today Mr. Sympson transfixed the base of the large tumour with a long straight bistoury & cutting upwards & outwards on either side & removed a V shaped portion of it. The remaining portion of the wall of the cyst was then pulled out with a pair of dissecting forceps. In about a fortnight the wound had quite cicatrized, and the patient had greatly improved in her general appearance. Before the operation a drop of the puriform discharge was examined under the microscope & was found to contain Pus & Blood Corpuscles & granular matter, but no nucleated cells.

Fig: 15.

Examination of Tumour after removal. On dissecting it from within out inwards, the following different structures were found. 1. Most externally the skin presenting two irregular ulcerated fissures between 1 & 2 inches in length. It was pretty firmly adherent to the subjacent tissue. 2. Immediately underneath the skin there were at a few points a small quantity of areolar & adipose tissue, but not in such amount as to form a distinct layer. 3. A coriaceous like substance of a yellowish colour forming a layer at some parts nearly 6 inch thick. This was made up of yellow elastic fibres densely aggregated together. 4. On examining the inner surface of the above it was found to be lined with a dirty greyish mucous matter which could

he scraped off on the edge of a knife in considerable abundance. This was composed entirely of Epithelium scales & granular matter. The Epithelium scales were of various forms, each containing a small nucleus. The substance found in the interior of the tumour was of a reddish brown colour, & of the consistence of thick opium. It possessed an abominably foetid odour.

Microscopic Examination showed it to consist of Pus & Blood Corpuscles, & a large quantity of granular matter. Many of the Blood Corpuscles presented a serrated edge, while a few seemed to be breaking down into the surrounding granular matter. Most of the Pus Corp. were just a little larger than the blood Corpuscles.

Remarks. The general aspect of this tumour and the circumstance of there having been several times a rather copious discharge of blood from its ulcerated surface, made it at first doubtful whether it was not a tumour Mali Moxis. But two considerations induced me to arrive at a different conclusion, which the examination of the tumour after its removal showed to be the correct one. 1. The discharge from the tumour consisted entirely of pus & blood Corpuscles & granules & contained no trace whatever of Cancer Cells. 2. Simple encysted tumours or wens of the Scalp have seldom or ever been known to degenerate or take on

*System of Surgery by Celsus transl. by South, II, 698.

a malignant action. The extreme fetor of the discharge was quite in accordance with what had before been observed in suppurating sores of the scalp. The original contents of the cyst in this case seem to have been entirely discharged, with the exception of the mucous like substance lining the inner surface of the fibrous envelope. This place supplied by blood undergoing decomposition. The tumour had been growing for 56 years, having first appeared, as sores generally do, about the age of 20.

Observation VIII.

Encysted tumour of the scalp - Removal - Cure.

On the 23rd of Decem^r. 1850. Mr. Sime removed another sore from the scalp of the patient who formed the subject of the last observation. This was in the immediate vicinity of the ulcerated one already described. It was of a globular form & about the size of a cherry with its surface entire. It was removed in exactly the same way as the first one. The wound cicatrized in the course of a few days.

Description of Contents. These were of a cream white colour & of the consistence of a thick custard. Microscopic examination showed them to consist of scales of cholesterolic oil globules, granular matter, Compound granular corpuscles, &

Nucleated (Epithelium) cells, The last presented very irregular forms & had an average diam^r of 500 micr^s. They were most abundant next the wall of the cyst. Many of them were loaded with granules. Fig: 14.

Remarks. In the last observation the proper contents of the vesic had become replaced by extravasated blood undergoing decomposition, but in the present case we have the proper contents of the vesic, illustrating a variety of these contents not uncommon in such tumours.

Observation IX.

Congenital Adipose Tumour at inner angle of Lower Eyelid - Removal. Cure.
 _____ a child aged 10 weeks was brought to Mr. Syms on the 9th of Decem^r 1850 on account of a small tumour situated at the inner angle of the left lower eyelid. The tumour was then about the size of a small hazel nut, & formed a conical projection under the skin. Passing from the cornea to the conjunctival surface of the lower eyelid corresponding to the tumour, & connecting the two together was a strong membranous band about 1/2 inch long, & 1/8 in broad. The eye was otherwise normal. Both of the above morbid appearances were observed at the time of the infant's birth. The tumour had since then considerably increased in bulk. A transverse incision (3/4 inch long)

was made through the integuments over the tumour, which was then removed piece by piece with a pair of dissecting forceps, being intimately adherent to the surrounding parts. The edges of the wound were then brought together by two sutures - There was hardly any hemorrhage. - The wound had completely cicatrized in the course of a week.

Description of the Tumour. This, as already mentioned, was about the size of a small hazel nut. When the incision was made through the skin, it projected between the lips of the wound, presenting a lobulated surface, the lobules being about the size of millet seeds. It was of a yellow colour like ordinary fat. It was so intimately connected to the surrounding normal fatty tissue, that it could not be removed entire, & accordingly, it had to be pulled out piece by piece. On compressing a portion of one of the small masses removed, & placing it under the microscope, it was seen to consist of large fat cells, many of them having a diam^r of $\frac{1}{250}$ inch. Most of these were of a rounded form; others presented a more or less irregular outline, probably from the escape of a portion of their oily contents, a quantity of which in the form of oil globules was scattered over the field of the microscope. Many of the fat cells possessed a rounded nucleus; no crystals of Malpighian acid could be seen.

Passing ~~through~~ ^{between} the fat cells were bands of white fibrous tissue. The latter seemed to be arranged in the form of areolae enclosing the fat cells.

Remarks. The above tumour which presented the structure of an ordinary fatty growth, was remarkable on three accounts - 1. Its situation, not being a common one for a lipoma. 2. The fact of its being congenital. 3. The intimate connection which existed between it & the surrounding normal fat.

Observation X.

Ulcerated Cancerous tumour adherent to lower jaw - Examination of the discharge.

James Quin, aet: 57 Pensioner was admitted into the Royal Infirmary under Mr. Syme's care on the 22nd of January, 1857 on account of a tumour adherent to the right angle of the lower jaw - He had before been a patient of Mr. Syme's last June, at which time a portion of the right side of the lower lip was removed on account of a tumour about the size of a cherry, which had been growing for 6 months, and which had been treated with Caustics without any benefit. The wound soon healed, and he was dismissed well & remained so for some months - About two months ago, however, a tumour began to grow over the angle

of the lower jaw on the right side. This has now attained the size of half an orange, & is firmly adherent to the bone. The pain in this tumour is so intensely acute, that he seldom sleeps without using opiates. About three weeks before his admission the tumour pointed, & was lanced; the opening has continued discharging ever since. Though the tumour adheres to the bone, the latter is not involved in the disease for the inner surface of the jaw is quite normal.

The Patient is losing his appetite, & has a peculiar yellowish complexion & anxious expression of countenance. Examination of the discharge. This ^{was} of a yellowish colour, and of a thin watery consistency. On placing a drop of it under the microscope, it exhibited innumerable pus corpuscles of the ordinary appearance. Along with these there were a few compound granular corpuscles, & blood corpuscles; also a few pale cells of much larger size than the surrounding pus cells. These were various shapes, most of them being either round, oval, pyriform, or triangular. Their size also varied. The average being about $\frac{7}{100}$ in: - the largest diameter of one cell, however, which was of an oval form, measured fully $\frac{1}{500}$ in. Acetic Acid rendered the cell wall still more transparent, & after a time dissolved it entirely. Each cell contained a single & in some instances a double round or oval nucleus ($\frac{1}{2000}$ in) with two or more granules

or nuclei in its interior. Many of the cells were seen breaking up into the surrounding granular matter of which there was a considerable abundance.

Remarks. That the above cells, ^{common in Cancer} resembled those most, I think there can be little doubt, and their detection in the discharge I consider peculiarly interesting, ^{to a certain extent,} as indicating the nature of the tumour from which the discharge proceeded. This conclusion as to the cancerous nature of the tumour was also confirmed by its rapid growth, the great pain experienced in it, by its affecting the general health, and by the fact of its having appeared in the neighbourhood of one, which some time before had been removed from the lip. The first tumour I had not an opportunity of examining, and therefore cannot speak positively as to its nature. As there were no enlarged glands in the neck, some may think that it would have been proper practice to have removed a portion of the lower jaw ^{along} with the tumour, but such an operation was counterindicated by the evidently malignant nature of the tumour, and by the fact well known to Surgeons, that removal of a portion of the Jaw on account of a tumour adherent to it is a far less successful operation, than removal of the jaw for a tumour of the bone itself.

Observation XI.

Epithelial growths on scrotum - Removal. Cure.

History. William Lamb act: 27 was admitted into the Royal Infirmary under the care of Dr. R. Mackenzie on January 16th 1857. on account of a large warty, excrescence growing on the middle of the scrotum, which he first noticed about 12 months before, which since then had been steadily increasing in size. - On Jan'y. 20th the whole growth was removed by a pair of scissors. The edges of the wound were brought together by sutures, and the patient recovered without any bad symptoms.

Examination of part removed. This consisted of an elliptical portion of the scrotal integuments two inches long, adhering to which was the tumour about the size of a small orange. Its form approached to globular; its surface was lobulated, very rough, & hard. On making a section through one of the small lobes, the surface presented a firm consistence, greyish white colour, & nearly pale green. It seemed to consist of a number of columnar pieces set side by side, so that a longitudinal section through one of the lobes exhibited a number of radiating lines passing from the base to the circumference. On squeezing it a slight quantity of watery fluid exuded from the surface. On examining a minute portion of the solid part under the microscope, it was found to consist entirely of

+¹. See *Abrev. tus* XII &c


of cells and granular matter. A few of these cells were Fig: 19
 round or oval with an average diam^t of 500 mic^h, but
 most of them were more or less elongated, & arranged
 with their long axes running in one direction. They
 were compressed in one direction so as to resemble scales.
 Each contained a solitary, round nucleus with a little
 fine granular matter. Acetic acid produced little
 change either on the nucleus or cell wall, except rendering
 the latter a little more transparent. Some of the cells in
 the field were solitary, but most adhered to others
 by their edges.

Remarks. This Tumour was evidently an hypertrophy
 of the Epidemic layer of the skin, consisting entirely of
 an accumulation of Epithelium's cells, & exactly
 resembling warty excrescences met with in other
 parts of the body^{x¹}. The above tumour formed a good
 example of those growths, which so often follow, and
 in many cases would seem to depend upon
 Venereal Complaints.

Observation XII.

Canceroid Epithelial Tumour of Lower Lip - Removal of Lip - Formation of
 new one - Cure -

History. John M^c Gill act: 60 a labourer was admitted
 into the Royal Infirmary under the care of M^r Syme on

Sept. 24th 1850 labouring under disease of his lower lip. Projecting from the margin of the left extremity of the lip was a rough irregular tumour about the size of a cherry, ulcerated on the surface, & covered with a greyish yellow discharge. ^{At some places with a horny scab} The ulcerated surface extended along the whole margin of the lip, & on introducing the finger within the mouth, the whole lip was found thickened & indurated as far down as the reflection of the Mucous Membrane upon the jaw. The disease commenced about 2 years ago in the form of a small pimple at the left side, which has gradually extended over the whole lip. He has occasionally pain in the part, but not very severe. There is no enlargement of the glands in the neck, & his general health is good. Oct. 2nd To-day Mr. Byrne removed the whole of the lower lip by a  incision. The 2 first incisions were then continued downwards & outwards, so as to fashion out two lateral flaps from the chin. These two flaps were then dissected off the jaw bone, & turned upwards so as to form a new lip. They were maintained in position by three needles & twisted sutures, the lowermost needle being made to pass through the summit of the portion of integuments still adhering to the bone. Oct. 6th The needles & sutures were removed to-day. The incisions have all united by the first intention. Oct. 11th Not a single bud

Symptom has manifested itself since the operation. The incisions have all united firmly, but there is still a granulating surface along the margin of the lip. The patient was able to have his chin shaved to-day. Oct. 16th Was dismissed to-day cured - The new lip quite covers his teeth - he can articulate with it, & also eat & drink.

Examination of Lip after removal. - Before the removal of the lip a small portion of the discharge from its ulcerated surface was examined microscopically, and presented an appearance depicted in Fig. 20. It consisted principally of large pus corpuscles (many 2000 with ^{trilobed} nuclei). Many of these possessed the characteristic ^{trilobed} nuclei. In others there was only a double or a few only a single nucleus. Mixed up with these corpuscles were a number of epithelium cells. Many of these were in the form of thin scales of a more or less rounded form and having an average diam of 500 in. - Others were oval, or pyriform, &c, while many were very much elongated. A few of the larger cells were seen splitting up at one or both extremities into fibres. Along with the pus & epithelium cells was a quantity of granular matter. On making a section through the tumour at the left end of the lip, it was found to be made up of two different parts - 1. A yellowish white, soft, pulpy mass, situated principally near the ulcerated margin of the tumour,

42. underneath the above, a firmer structure of a white color. On making a thin section of the latter & examining it microscopically, it was found to be made up of a number of fusiform or elliptical nucleated cells arranged with their long axes in one direction, so that under a low power the section resembled fibrous tissue - These cells might be seen in all stages of development - Naked nuclei, cell walls forming around these. &c. - Acetic Acid produced little change in these cells. In addition to these cells there were others, which were found with a diam of 1500. & presenting after being acted on by Acetic Acid a granular nucleus, which thus seemed to be fibro-plastic cells - The softer portions of the mass presented the same structures under the microscope, but it contained a far larger quantity of granular matter, & the epithelium cells were less adherent to one another. The lining attachment of the diseased mass to the lip was very vascular.

Remarks. The above case is an example of a not uncommon disease - simple hypertrophy of the mucous membrane of the lower lip, the epithelium being in such quantity as to constitute a large warty excrescence, precisely similar to warty excrescences found in other parts of the body. Until recent microscopic researches explained the real nature of this disease, it was designated and regarded by Surgeons as Cancer of the lower lip, & and

and through examination of the structure of these growths, shows that they are hypertrophies of the skin, yet certainly they do often possess many of the characters of a malignant tumour. See Page 43.

Observation XIII.

Subcutaneous Nervous Tubercle on Thumb - Excision - Cure.

History. Thomas Crawford, aet. 45 Blacksmith was admitted into the Royal Infirmary on the 4th of Sept^r 1850. He complained of a small tumour about the size of a hazel nut situated under the skin at the lower part of the left thumb region immediately above the rest of the thumb. It was about two years since he had first observed it but he said it was as large then as on admission. His attention was first drawn to it by an intense pain of a pricking nature at the part. For the last two years he has been more or less troubled with pains of a similar description, so severe as often to prevent sleep, & make him very anxious for the removal of the tumour. Mr. Syre made a small incision through the integuments over the tumour, caught hold of the latter with a hook and dissected it out. The wound healed by the first intention, & the patient was dismissed cured two days after the operation, having had no return of the pain he was formerly troubled with.

Description of the Tumour. It was perfectly globular, and about the size of a common hazel nut. It presented externally a smooth scow-like surface, as if it had been enveloped in a cyst. On making a section through its centre, it was found to be of rather a gelatinous consistence, & of a white colour with a slight tinge of pink. A small quantity of a watery fluid could be squeezed from it by pressure, which, however, exhibited no structure under the microscope. A minute portion of the tumour, after being teased out with a pair of fine needles, & placed with a drop of water between two glass slides, presented under the microscope a structure represented in Fig: 22. It consisted of a very fine fibrous tissue, the fibrillae of which ran for the most part in parallel directions and in somewhat wavy lines. Interspersed among the fibrillae were a number of dark specks. The addition of Acetic Acid caused the fibrillae almost entirely to disappear, while the dark specks were rendered more distinct, & were found to be elongated nuclei, the long axes of which corresponded to the direction of the fibrillae. These nuclei measured about $\frac{1}{400}$ inch in their long diam. & were about three times as long as broad.

Remarks. The structure of the above tumour differs somewhat from that given of *Neurorhynchus tumidus* by

Dr. Bennett at page 190 of his *Observ. on Cancerous & Canceroid Growths*. He describes them as consisting of bands of fibres running in wavy lines, & sometimes forming loops, with occasional transparent cells, containing a nucleus composed of two or more ^{small} granules, not affected by Acetic Acid, which he considers Cartilage cells. No such cells could be detected in the above tumour. The elongated nuclei were probably the nuclei of the cells from which the fibres had been developed. I have never had an opportunity of examining the structure of a true Neuroroma, springing from the trunk of a nerve. Its structure may differ somewhat from that of the subcutaneous tubercle of which the present is an example, and it seems to be the former to which Dr. Bennett alludes in his description. A remarkable fact in connection with subcutaneous nervous tubercle, which the present case illustrates, is that they seldom increase at all in size after they are first observed by the patient, & in most cases, Mr. Syre has observed, the patients have been suffering from them for two years, before they present themselves for relief. These growths occur more frequently in females than males, & far more frequently in the limbs than the trunk of the body. This one, however was in the trunk, & the patient a male.

Observation XIV.

Carcinoid Epithelial growth on the lower lip - Removal - Cure.
 History Janet Christian aet. 57. Washerwoman was admitted into the Royal Infirmary, under Mr. Syms' care on Jan^y. 21st 1857. on account of a warty excrescence growing upon the left side of the lower lip. It extended from the left angle of the mouth almost to the middle of the lip, but did not involve much more than the margin of the lip. It had been growing for 18 months, and she attributed its origin to her lip having been scorched when shearing at harvest time. It commenced as a small pimple - Occasionally the horny surface of the wart used to fall off, but another soon formed. Jan^y. 23rd Mr. Syms removed the whole of the diseased mass, by one stroke with a pair of curved scissors. The skin & mucous membrane were kept in contact by 4 sutures. In the course of a few days the wound had quite cicatrized.

Examination of the part removed. This was about 1 inch long, included the whole thickness of the lip, with a small portion of the orbicularis oris muscle. On the upper surface was the rough hard excrescence above alluded to. This seemed to consist of 2 masses each about the size of a large pea, and separated by a deep fissure. By means of the edge of a knife, the hard crust on the

Surface could be raised up with ease & removed, & underneath it there was found a soft pulpy matter of a cream white colour. On examining a minute portion of this under the microscope, it was found to be made up entirely of nucleated cells, & granular matter. Some of the former were round, others oval, but most were more or less elongated, & in many one of the extremities was distinctly seen splitting up into fibres. These cells adhered to one another by their edges & were but little affected by the action of Acetic Acid. Each of them possessed a single round or oval nucleus (zooon). Underneath this pulpy matter was the true skin which was much thicker & more vascular than natural, & its papillae were considerably enlarged. The hard horny substance presented on incision the same elements as the soft matter, & was evidently a portion of the latter become dry, & indurated.

Fig. 23.

Remarks. This growth was evidently of the same nature as that described in Obs. 12. Hypertrophy of the Epithelium of the lip - It differed from that of Obs. 12. in the more elongated form of the cells composing it, & also in its surface being always covered with a hard slab in place of being in a state of ulceration.

Observation XV.

Tubercular Tumour in Axilla - Excision - Cure.

History. A — S. — act. 51. Married was admitted into the Infirmary on the 26th of August 1850, on account of a tumour in the right axilla. This tumour was the size of a small orange, with a lobulated surface & of a ^{rather} firm consistence. She first observed it three years before, it being then no larger than a hazel nut. She never had any pain in the tumour till within a few months before admission, & even on admission the pain she complained was not of a very severe character. Doubts being entertained as to the real nature of this tumour, and the patient being very anxious to get rid of it, it was resolved to remove it. Accordingly, on August 27th the patient was brought under the influence of chloroform, and Mr. Syne dissected out the tumour, a longitudinal incision having first been made through the integuments between the two folds of the axilla. The wound healed entirely by the first intention, and the patient was dismissed cured on Sept. 12th.


Description of Tumour. It weighed altogether $3\frac{1}{2}$ oz. avoird. It consisted of one large portion, the size of a small orange with several smaller masses about the size of cherries loosely attached to it. An obscure fluctuation could be felt in each of these masses, & on cutting into

them, they were found to contain in the Centre a yellowish white pulp, which microscopic examination showed to be made up of irregular Corpuscles & granules, exactly like those met with in softened tubercular deposits in the Lungs &c. The exterior portion of the Masses was of pretty firm Consistence, but gradually became softer & more friable towards the centre. It presented a smooth surface when cut, of a pinkish grey colour. It consisted principally of a network of white fibrous tissue, with Corpuscles & granules similar to those already described infiltrated through its meshes. Fig: 24

Remarks. This Tumour appeared to be made up of a series of the lymphatic glands of the Axilla enlarged in consequence of a deposit of tubercular matter which had softened in their Centre. The pulpy matter was made up of an immense quantity of Tubercle Corpuscles. Some of these were round & not unlike pus Corpuscles. None of them exhibited, however, the characteristic nucleus of pus on the addition of Acetic Acid. The harder portion of the tumour seemed to be undergoing a process of softening from the formation in its substance of Corpuscles &c. similar to those which composed the pulpy fluid. The case is the more interesting as until after the re-

removed of the tumour its real nature was not ascertained.

Observation XVI.

Cancerous Tumour on alveolar process of upper Jaw. Excision - Cure.
 Mr. S. a gentleman aet: 60 consulted Mr. Syne towards the close of Novemb^r. 1850 on account of a tumour springing from the alveolar process of the upper jaw. This tumour he had first observed growing two months before. It was situated a little to the right of the Medial line, occupying the situation of the outer incisor & canine teeth. The whole of the teeth in the upper jaw were gone. The Tumour was about the size of a potatoe plum & firmly adherent to the jaw. Its Consistence was firm & near its base hard like bone. The Mucous Membrane of the gums was prolonged all over its surface. It was often the seat of pretty severe pain. Nov: 27th To day, Mr. Syne ^{after} cutting through the soft parts with a bistoury, removed the tumour along with the portion of bone to which it was attached by a  incision - A pair of bone files was employed for division of the bone - The cavity which communicated both with the nose & the anttrum of Highmore was stuffed with lint. For about a week after the operation, there were occasionally pretty copious oozings of blood from the cavity

*¹. The colour of a fresh section was a beautiful florid red, not unlike that of the spleen after being exposed some time to the air. -

in the bone, which were stopped by plugging it with lint - The patient quite recovered from the effects of the operation, but died six weeks after, of an attack of Apoplexy.

Description of the part removed. The Tumour itself was of a globular form, and about the size of a potatoe plum. It was of firm but not hard consistence, except near its base. It seemed to take its origin from the alveolar Cavities of the teeth, which were removed along with a portion of the osseous floor of the Right nostril & right antrum of Highmore. A section was made with a Scalpel from the apex of the tumour down to its attachment to the bone. The surface of the section presented a dark red colour, with a few arborescent streaks of white. On dissecting the tumour from without inwards the following structures were observed. 1. The mucous membrane which was reflected off the gums upon the Tumour. 2. The submucous areolar tissue, which was particularly thick (to inch) & dense on the anterior aspect of the tumour & was made up of white & a good deal of yellow fibrous tissue. 3. A thin fibrous covering immediately enveloping the proper texture of the tumour. From which septa were sent inwards through the septa of the latter, constituting the reticulated & arborescent lines already alluded to. As the fibrous envelope was traced towards the base of the tumour, Bony matter was found deposited in

it (Commencing about the middle of tumour, until at last it seemed to become continuous with the bone itself. The Tumour in fact appeared to take its origin from the interior of a greatly expanded alveolus. On dissecting the tumour of the bone, the surface of the latter was found to be very rough, & the Cavities formerly occupied by the fangs of the teeth quite obliterated. The substance of the tumour presented an intensely vascular aspect, and the presence of numerous bloodvessels was confirmed by microscopic examination. A scraping the surface of a fresh section a considerable quantity of a thick fluid of a slightly reddish colour was obtained, which the microscope showed to contain numerous transparent nucleated cells, such as are represented in Fig. 25. along with blood corpuscles, oil globules &c. The Majority of these cells were of a globular form with a diam. varying from $\frac{1}{500}$ inch downwards. They were seen in all stages of development. Many of them were loaded with globules refracting the light strongly, and evidently of an oily nature as shown by their solution in Ether. The nuclei were round about $\frac{2}{1000}$ inch in diam. & often contained a distinct nucleolus. Other cells were seen along with the above. These were mostly of a much larger size ($\frac{1}{250}$ in.), of various very irregular forms, & with their edges collapsed & much

Fig. 25.

less defined than those first mentioned. They each contained only a single nucleus with a quantity of oil globules & granular matter. Some of them, however, had more than one nucleus. One was seen with four. Many of them seemed to be breaking down into the surrounding granular matter, of which as well as oil globules there was a considerable amount floating loose among the cells. These last cells were probably only a more advanced stage in the life of those first described, as various transition forms from the one to the other could be traced. None of the cells above described exhibited any tendency to adhere to one another by their edges. Acetic Acid ^{diluted} rendered the cell walls more transparent, & after a time dissolved them, while the nuclei were left unaffected. On examining under the microscope a thin section of the tumour made with a Valentini's Knife, after the addition of a drop of Acetic Acid, it was found to consist of a network of fibrous tissue, principally yellow elastic. Various empty spaces were left in this network of a more or less circular form, in which were imbedded masses of the cells & oil globules already described. At fig: 26 is represented the magnified appearance of a thin section, made with a Valentini's Knife through the external envelope, including a portion of the proper substance

Fig: 26.

+ See Page. —

of the tumour.

Remarks. In classifying this tumour with Cancerous tumours, I must acknowledge that at first I had some hesitation in doing so. The absence of a milky juice, and the great similarity of many of the cells to Epithelium cells were the cause of this hesitation - After some consideration, however, I came to the conclusion that there could be little doubt as to its Cancerous nature on the following grounds - 1. The red colour of the juice obtained from the tumour was evidently owing to the numerous Blood corpuscles which it contained, these being derived from the Bloodvessels of the growth, which was, as we have seen, very vascular. Independently of these, the juice resembled those of ordinary Cancerous tumours, containing like them a large quantity of the cellular element of the tumour. 2. The cells themselves, though many of them were not unlike Epithelium cells, yet differed from these in exhibiting no tendency to adhere together by their edges, and in the cell walls being easily affected by the action of Acetic Acid, Moreover, many of the cells were like those commonly met with in Cancer; & indeed as we have seen, the

form of a cell cannot be taken into account as determining whether it is a Cancer cell or not.

3. A thin section of the tumour exhibited the ordinary structure of Cancerous tumours, a fibrous stroma with loculi full of cells - The pathology of tumours originating in the alveolar processes of the jaws is but little known, few cases having been recorded in which they have been carefully examined, & none that I have been able to lay my hands upon. The present case, as also that which forms the subject of Obsv. 3. I consider on this account the more deserving of interest. -

Observation XVII.

Large pendulous fatty tumour in angle between hip & thigh.
Ulcerated surface. Removal. Cure.

History, J. — R. — aet. 52 Weaver's wife, a middle sized, healthy, looking woman was admitted into the Royal Infirmary under Mr. Syme's care on January 4th 1857. on account of a large tumour hanging from the angle between the right hip & thigh. This was of large size, as large as one's head, & of a pyriform shape, tapering at its upper extremity to a narrow neck, & being very large at its lower.

end, which was divided into three lobes by three distinct depressions - The Tumour was of elastic consistence - The integuments moved freely over the surface of the growth, and the whole mass could be turned round & round on its neck. ^{which seemed to consist of little but integuments & areolar tissue.} The Tumour had been growing for 15 years, but far more rapidly for 5 months before admission - three weeks before, it had ulcerated at several parts of its surface, and since then she had been subject to violent headaches, her appetite had fallen off, & her health seemed to be suffering - Jan. 8th To day, Mr. Syne removed the tumour the patient being under the influence of Chloroform - Three or four small arteries had to be tied - The wound did not heal by the first intention, but had almost completely cicatrized by January 29th when she was dismissed from the Hospital.

Description of the Tumour. It weighed 4 lbs. 7 oz. avoird. It was of a rounded form (after removal) & presented over its surface five ^{irregular} ulcerated patches, the largest being about the size of a penny piece. The surface of these ulcerations presented a dirty greyish aspect, & was coated with a greyish yellow puriform fluid. On examining a drop of this under the microscope, it was found to consist of Pus Corpuscles, Compound granular cells,

and a large quantity of oil globules, and granular matter. On removing the integuments the surface of the growth itself was found to be very much lobulated, but separated from the normal subcutaneous fat by a distinct fibrous envelope. On cutting into the substance of the tumour, the surface of a section presented an appearance exactly the same as that of ordinary human fat, with here & there a few bands of white fibrous tissue intersecting it. Microscopic examination showed it to be made up of globular & polyhedral fat cells, with a small quantity of areolar tissue - No crystals of Margarine Acid could be detected in the interior of the cells - The substance of the tumour immediately beneath the ulcerated surfaces was much softer than the rest, and a quantity of an oily fluid could be squeezed from it by pressure.

Fig: 27.

Fig: 28.

Remarks - This Tumour was a good specimen of the ordinary lipomatous fatty tumour, occurring too in a situation where such tumours are not uncommon. The chief peculiarities about it were its great size, & the ulcerated patches in the integuments covering it - See page 58.

Observation XVIII.

Congenital Enchondroma on middle finger - Amputation of finger - Cure -

History. P. — S. — aet: 12 a stout healthy boy, the son of a fisherman in Shetland was admitted into the Royal Infirmary on the 21st of October 1850, on account of a tumour about the size of an orange growing from the proximal phalanx of the middle finger of the left hand. He stated that the tumour had existed at his birth, but of late had been increasing more rapidly in size, & a fortnight before admission had ulcerated on its surface. The tumour was of a globular form, of a somewhat elastic consistence, and evidently springing from the centre of the bone.

Oct. 22nd The middle finger was amputated at the Metacarpophalangeal joint - By the 8th of Novemb. the wound had completely cicatrized, the patient never having had a bad symptom.

Description of Tumour. It weighed 6oz Avoid. It was of a globular form, and about the size of a large orange. It projected principally from the ulnar aspect of the bone. The integuments over the part of the tumour most distant from the bone exhibited an oval ulcerated patch fully broader than a half crown piece covered with a puriform

fluid. On dissecting off the integuments and subcutaneous fat the surface of the tumour presented a smooth serous like aspect. On cutting down to the attachment of the tumour, it was found to take its origin from the very centre of the phalanx. On cutting into the substance of the tumour, it yielded readily before the knife, and was of soft, elastic consistence. The tumour was surrounded externally by a fibrous envelope, which near the attachment of the tumour, seemed to pass into & be continuous with the expanded bony laminae of the phalanx. From this external envelope a number of canaliculi passed inwards into the proper substance of the tumour. These septa were very vascular, so much so, that at some parts of the tumour they appeared quite red. In some of them osseous matter was deposited. They divided the substance of the tumour into numerous polygonal compartments, which were filled with a pink, translucent substance of the consistence of a firm jelly. It was elastic, for on making a section it was found to rise up from the cavities containing it. This when examined under a microscope (of 280 linear) was seen to

consist almost entirely of transparent nucleated
 cells of exceedingly various forms a few of which are
 represented in Fig 29. - Round, oval, pyriform, Fig. 29.
 triangular, &c. Some were caudate, splitting up
 at one extremity into 2 or more filaments. A few
 of these cells were of large size, having a diam.
 of about $\frac{1}{400}$ in - but the average diam. seemed
 to be between $\frac{1}{600}$ & $\frac{1}{1000}$ inch. Each cell contained
 in its interior a solitary, round or oval opaque nu-
 cleus $\frac{1}{2500}$ to $\frac{1}{3000}$ in; in diam. - In a thin section
 of the tumour the above cells seemed closely packed
 together, the connecting medium, if any, being
 perfectly transparent. The substance of the tumour
 next the ulcerated portion of the integuments, for about
 the thickness of $\frac{1}{4}$ inch, was soft & of a yellowish
 colour. & exhibited under the microscope, in ad-
 dition to the above cells many which seemed
 to be breaking down, a quantity of oil globules &
 granular matter. & a few pus corpuscles. In = Fig. 30.
 deed a process of softening seemed to be extend-
 ing, so to speak, from the ulcerated surface all
 over the tumour

Remarks. The above tumour constituted a good
 example of an Enchondroma originating from

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the centre of a bone. It presented all the characters already mentioned as peculiar to such tumours see Page 49. - Ulceration of the superimposed integuments is not an uncommon occurrence in Enchondromata which have attained some size. In this case the whole tumour was evidently undergoing a process of softening, this being most evident in the neighbourhood of the ulcerated integuments, & less so near the Bone, where indeed it presented the ordinary consistence of an Enchondroma.

Observation XIX.

Enchondroma of Ring Finger. Amputation of finger - Cure.

act: 13. a boy stout and in good health consulted Mr. Sympson on the 3rd of November 1850 on account of a tumour on the proximal phalanx of the Ring finger of his left hand - This had been growing for about two years & he could attribute no cause for its origin. It was about the size of a potatoe plum, intimately connected with the bone, and projecting from its radial aspect. He had never any pain in it, but was anxious to get rid of it on account of its inconvenience & for fear of its getting larger. On the 4th of November

Mr. Syme amputated the finger at the Metacarpophalangeal joint - About a fortnight after the wound had quite cicatrized, & the patient was in good health.

Description of the Tumour. It was of a globular form, and about the size of a potatoe plum. The integuments moved freely over it, & on dissecting off these its external surface presented a smooth glistening aspect; On making a section from the most prominent part of the tumour down to its attachment to the bone, it was found to take its origin from the medullary cavity of the latter. The bony laminae were expanded over about one half of the tumour, forming a sort of osseous envelope, which assumed more the texture of cartilage on the most prominent part of the tumour - The surface of the section presented a greyish white colour with a translucent lustre.

Pernifying through the substance of the tumour was a network of septa dividing it into a number of areolae. These septa were of a whiter colour than the rest of the tumour, & when examined microscopically were seen to consist of fibrous tissue. The substance which filled up these areolae was of a greyish white colour, & jelly like consistence. A small portion got when compressed between two glass plates, & examined

Fig: 52.

under the microscope was found to consist almost entirely, of transparent nucleated cells. These cells varied considerably, in size, some having a diam^r of 500 mic^h, while that of others was only $\frac{1}{2000}$ in. or less. They also varied greatly, as to form^{being}, round, oval pyriform, fusiform, Caudate, &c. A great number of them were pyriform with the nucleus situated at the larger extremity of the cell. Each cell contained a single in a few cases a double nucleus. The nuclei were round or oval, about $\frac{1}{4}$ the size of the cell, & contained a central dot or nucleolus. Acetic Acid did not seem to affect much either the cell or the nucleus. The cell wall if anything was rendered rather more transparent. The cells as seen in the field of the microscope were partly, isolated, and partly aggregated into masses - a few molecules & granules were seen floating among the cells. The above elements seemed to be suspended in a transparent, structureless fluid.

Fig: 31.

Remarks. This tumour like the one last described was an example of Enchondroma, originating in the centre of the proximal phalanx of the ring finger. It had not attained the size which the last one had. The integuments over the tumour were perfectly sound, and

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there were no symptoms of softening in the substance of the tumour.

Observation XX.

Gelatinous Polypus of the Nose - Removal = Cure?

History. On the 24th of March 1849 Mr. Miller removed with forceps a polypus from one of the nostrils of a man, from whom several others had been removed at previous periods. The polypus was about the size of the last joint of the index finger. Its form approached that of a pear, its narrower extremity being that by which it had been attached to the lining membrane of the nose. It was of soft gelatinous consistence and a section of it presented a greyish white colour. Externally it was enveloped in a thin membrane, which microscopic examination showed to be made up of an interlacement of white fibrous tissue. This membrane contained numerous arborescent bloodvessels. On scraping its external surface, & on examining with a microscope a few whitish flakes which were collected on the edge of the knife, these were found to consist of Columnar epithelial scales ($\frac{1}{450}$ inch long diam) many of which had cilia on their broad extremities. Fig 55.

A portion of the gelatinous substance of the polypus when examined was found to consist almost entirely of nucleated cells - There were two kinds of these: Fig: 34.

1. Globular cells $\frac{1}{200}$ in: in diam^r containing a single central nucleus which on the addition of a drop of Acetic Acid presented a slightly granular surface &
2. Elongated fusiform cells each containing a central nucleus with a small quantity of fine granular matter. The cell membranes in both cases were very faint, & completely disappeared on the addition of a drop of moderately diluted Acetic Acid, which at the same time rendered the nuclei far more distinct. These elongated cells were arranged for the most part side by side. Many of them were observed splitting up at one extremity, and evidently undergoing a transformation into fibrous tissue. Indeed at one or two parts of the polypus which were of finer consistence than the others, true fibrous tissue was found. The Tumour did not appear to be very vascular, but one or two small arteries might be seen coursing through its substance.

Remarks. This Tumour is an example of the gelatinous polypus, not uncommon in the nasal Cavities. I think it may be classed under the head of fibrous

tumours with more propriety than under the Epithelial
 excrescences from the Skin Mucous Membrane, for
 though the external surface was coated with a layer
 of Epithelium, its substance was composed of fibrous
 tissue, or rather of cells undergoing a trans-
 formation into fibres. The rounded cells alluded
 to in the description were evidently the "fibro-
 plastic" cells of Lebert, and but a younger stage
 in the development of the fusiform cells, nume-
 rous cells being seen presenting transition forms
 between the two. The transformation of the fusi-
 form cells into fibres might also be traced.

Observation XXI.

Encysted Tumours of the scalp - Removal - Cure.

History. John Roy, aet: 63. a builder was admitted
 into the Royal Infirmary under Mr Sykes' care
 on Jan^y. 23rd 1857, on account of several large en-
 cysted tumours of the scalp. The two largest of these,
 each about the size of an orange, were situated side
 by side immediately over the occiput. The one on
 the left side was of a globular form, & consisted of a single
 cyst; that on the right was also somewhat globular,
 but there was a distinct depression on its surface, in

indicating its Composition of two different Cysts. Scattered over the rest of the Scalp were seven other similar, but smaller tumours. The patient stated that it was 30 years since the largest began to grow, and that his Mother, Maternal uncle, and Mother's grandmother had been all subject to the same disease - The two large tumours were removed by Mr. Arne; part of the cyst integuments were first removed by a V incision, the contents of the Cysts then evacuated, & the rest of the cyst walls pulled out with a pair of dissecting forceps - In the course of a fortnight after the operation the wound had quite cicatrized.

Examination of the cysts & their contents. As the three cysts removed differed somewhat from one another, it will be most convenient to describe them individually.

1. The greater part of the largest cyst was filled with five fluid ounces of a reddish brown fluid of the consistence of gruel. The whole surface of this fluid glistened with scales of Cholesteroline. The inner surface of the cyst was lined with a firmer pultaceous substance forming a layer $\frac{1}{4}$ inch thick, which was divided by a number of irregular cracks into polygonal pieces - The inner surface of this substance being bathed by the fluid contents

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presented a similar Colour, but on scraping off the surface, it presented a white Colour, and an appearance similar to the contents of tumour 3. The outer surface of the cyst presented a smooth surface, and a fibrous appearance. A drop of the reddish brown fluid when placed under the microscope exhibited structures such as represented in Fig. 35 - Numerous scales of Cholesteroline, Compound granular cells, oil globules & granular matter & also a great many blood corpuscles, & a few nucleated cells presenting an more or less rounded outline, varying in diameter from 500 to 1000 micr. - little affected by the action of Acetic acid & each containing a single minute nucleus. The pultaceous substance lining the inner surface of the cyst presented the same elements, but here the nucleated cells greatly predominated over the Cholesteroline and oily matter. In fact it more resembled the contents of tumour 3. On making a section with a Valentini's knife through the walls of the cyst from without inwards, & placing it under the microscope, after first adding to it a drop of diluted Acetic Acid, it was seen to be made up of nucleated cells which at the inner edge of the section were exactly the same as those in the pultaceous matter lining the cyst,

Fig. 35.

Fig. 37.

but towards the outer surface they gradually became more elongated, & at the very external surface they were transformed into a tissue distinctly fibrous. 2. The contents of the second tumour, which with the next together formed the globular mass adhering to the right side of the occiput, exactly resembled those just described, with this exception that the fluid portion, which measured $\frac{1}{3}$ IV was of a much lighter colour - a sort of buff brown - and contained ^{very few} blood corpuscles. 3. The third tumour which was much smaller than any of the others, being not larger than an ordinary sized plum, contained no fluid matter at all, but its cavity was entirely full of a cream white pulvaceous matter, similar to that lining the inner surfaces of the larger cysts. It was made up of numerous nucleated cells, like those already described, compound granular cells, granules, oil globules, & a few scales of cholesteroline. -

Fig. 36.

Remarks. The fact of the small cyst being full of a somewhat solid matter, & of the larger ones, even though they contained fluid, having their inner surfaces lined with a similar solid matter, would indicate that the contents of the latter had also been

at one time solid, and that the formation of the fluid had been a subsequent process. Its formation probably resulted from a gradual softening of the more solid matter, and as the result of this softening we find a greatly increased quantity of oily matter & cholesteroline - a circumstance which is not without interest when we recollect, that the presence of oily matter, & in some cases of cholesteroline also, is a frequent concomitant of softening of the healthy textures of the body, if not the means by which that softening has been effected.

The gradual transition of the cells found in the interior of the cysts into fibrous tissue in the parietes would lead us to suppose that the latter has been formed by a gradual transformation of these cells, and would thus contraindicate the opinion of those who maintain that an encysted tumour of the scalp always results from the expansion of a sebaceous follicle by an accumulation of its contents.

Observation XXII.

Adipose Tumour of Thigh - Excision - cure.

History - William S. - aet: 48 a tall, strong man in the enjoyment of good health was admitted into the Edinb.

Infirmary, under the care of Mr. Syre on the 26th of Decemb:
 1850 on account of a tumour situated at the outer Ante-
 rior aspect of the upper part of the left thigh, its upper
 border being about 3 inches below the level of the Tro-
 chantes major. It was of a rounded form, and about
 the size of the palm of the hand. Its surface was dro-
 dulated, as was well shown by making the skin over
 it tense. Its consistence was elastic, and it seemed
 but loosely attached to the surrounding tissues. The
 patient complained of no pain in the tumour, but
 said he was very subject to numbness & peculiar
 sensations running down the thigh. - On Dec: 28th Mr.
 Syre removed the tumour, first making a longitu-
 dinal incision through the integuments, & then
 dissecting or rather pulling it out. Only one small
 artery had to be tied. - By the 6th of Decemb: the
 wound had quite cicatrized.

Description of the Tumour. It weighed 3oz: avoird: It
 was of a circular compressed form, and very
 much lobulated. The lobules were imbedded in
 cavities in the natural fat out of which they were
 pulled rather than dissected. They were separated
 from the normal fat by a distinct membranous layer
 of areolar tissue. On cutting into the tumour, it

presented an appearance precisely similar to that of ordinary human fat, if anything of a somewhat paler colour. Microscopic examination showed it to consist for the most part of fat cells. These were of a more or less globular form $\frac{1}{500}$ to $\frac{1}{1200}$ inch. = Fig: 38. Many of these contained a round nucleus, but stellate crystals of Manganic acid, though diligently looked for could nowhere be seen. Along with the fat cells were numerous globules of oil, which had escaped from a rupture of some of the cell walls. Here and there through the substance of the tumour might be seen a few bands of areolar tissue, but the amount of this was very sparing.

Remarks. This tumour presented all the ordinary characters of an adipose tumour; the lobulated surface distinct from the surrounding fat, the resemblance on section to ordinary human fat. The small amount of vascularity, & the composition of cells containing oil with more or less areolar tissue, are the characters presented by most fatty tumours.

Observation XXIII.

Adipose Tumour over Left Clavicle - Excision - Cure.

History. Elizabeth H — act. 50. was admitted into the

Infirmary on the 16th October 1850. on account of a tumour about the size of chestnut, & presenting all the characters of a fatty tumour, situated over the middle of the left clavicle. This had been growing for upwards of four years. She had no pain in it, but occasionally complained of pain down her ^{left} arm. - The tumour was excised by Mr. Syne. One small vessel had to be tied. The wound healed without any bad symptoms.

Description of the tumour. It was of a rounded compressed form with a diameter of 2 inches, & weighed $\frac{3}{4}$ oz. Its surface was lobulated, but quite distinct, & easily separable from the normal subcutaneous fat. Its appearance on section & microscopic structure exactly resembled those of the tumour last described.

Remarks. This case like the last, furnishes an example of an occurrence often met with, viz a fatty tumour at the proximal end of a limb producing pain in the limb below, this not being accountable for by its pressure on any great nervous trunk.

*! It had been observed at the period of the child's birth,
but was then of very small size. -

Observation XXIV.

Congenital Adipose Tumour on back. Excision - Cure.
 — — — act: 6½ months was operated upon by
 Mr. Syme on the 11th of Decemr. 1850. The operation
 consisted in the excision of a fatty tumour growing
 under the integuments over the right Scapula. The
 Tumour caused a bulging of the skin fully as large
 as a Cocoa Nut. An incision was made over the
 tumour through the integuments, and the Tumour
 removed with some difficulty owing to its inti-
 mate connections to the normal subcutaneous fat.
 2 small arteries were to be tied - The edges of the
 wound were kept in contact by sutures, & by the
 end of three weeks had quite cicatrized, but there
 still remained a considerable fullness in the
 site of the original tumour.

Description of the part removed. It weighed 5½ oz: avoird.
 and was of a rounded compressed form. Its upper
 surface was rather smooth, for owing to its insepar-
 able connection to the normal fat, the two had to
 be artificially separated by the knife. The lower sur-
 face, however, which was easily dissected from off
 the latissimus dorsi, presented the ordinary lobulated
 appearance of lipomatous tumours. Its microscopic

Structure was quite the same as that of other fatty tumours already described. None of the fat cells contained any crystals of Margaric Acid, even when taken from a portion of the tumour which had been exposed to a temperature of 40° Fah^o.

Remarks. This Tumour was remarkable for its rapid growth, & like that of Observ. IX., for its being congenital, and for its intimate & inseparable connections with the normal fat.

Observation XXV.

Epithelial growth on lower Lip. Removal of Lip. Formation of New Lip - Cure.

Elizabetha æt: 63 was admitted into the Infirmary under M^r. Squire's Care on Novemb: 1th 1850 on account of a tumour of the lower lip, which commenced 2½ years before in the following manner. After being exposed a whole day to a warm sun a "hack" (to use her own expression) formed in the centre of the lip - Soon a small wart began to grow in the situation of this fissure, & this has gradually extended over the whole lip as far as the angles of the mouth. There was on admission a large excrescence fully 1¼ inch thick, fringing the whole of the margin of the lip, & overlapping the skin of the chin,

which, however, was not at all involved in the disease. In putting the finger into the mouth, the whole lip was found thickened & indurated as far as the reflexion of the mucous membrane upon the jaw. She complained of great pain in the part, often so severe as totally to deprive her of sleep. There was no enlargement of the cervical glands; & her general health was good. Nov. 13th Today Mr. Syme removed the whole of the lower lip by a V incision, & formed a new one by two lateral flaps from the chin in exactly the same way as mentioned in Observ. XII. - The needles and sutures were removed on Nov. 17 & by the 20th the wounds had quite cicatrized.

Description of Tumor. As already mentioned this formed an irregular hard excrescence from the margin of the lip extending along its whole length, & overlapping slightly the skin of the chin. Its surface was ulcerated & covered with a slight greyish discharge, which was found to contain Pus Corpuscles, nucleated epithelium cells & granular matter. On section it presented a dense texture of a greyish white colour, wh. was entirely made up of epithelium cells & granular matter, precisely similar to those described in Obs. XII, & Fig: 39. which, therefore, it will be unnecessary to describe more

150.
minutely. ^{Remarks.} This Tumour resembled closely the one described in Obs. XII. differing principally in the greater size which it had attained

Observation XXVI.

Cancer of Mamma - Excision - Cure.

^{History} In the beginning of January 1857. Mrs. — consulted Mr. Syre on account of a tumour in her right Mamma. This tumour seemed to be about the size of a Common Chestnut, and to be limited to the upper & outer part of the gland. It appeared to be intimately adherent both to the gland and also to the subjacent muscle, and was of very hard consistence. It had been growing for upwards of 2 years, but had not given her much pain till three months before she saw Mr. Syre. During the latter period, however, it had often been the seat of severe shooting pains. On the 18th of January Mr. Syre excised the Mammary gland, first making an elliptical incision through the integuments. The patient had no bad symptoms after the operation. The wound united almost entirely by the first intention, and in the course of a fortnight had quite cicatrized.

Examination of the part removed. This consisted of an elliptical portion of the skin with the nipple in the centre,

The whole of the mammary gland surrounded by a con-
 siderable quantity of fat, and at one part of the lower
 surface, a portion of the Pectoral muscle about 1 inch
 long. The whole mass weighed 7oz: avoird. On
 making a section through its centre, the greater
 part of the glandular substance of the Mamme
 seemed perfectly healthy. But at one part, corres-
 ponding to the upper and outer part of the gland,
 there was a hard mass about the size of a large
 Chestnut. The edges of this were not defined, but they
 seemed gradually to pass into the healthy mam-
 ma. The structure of this mass was very dense, grat-
 ing under the knife when cut, like a piece of cartilage.
 It was of a greyish white colour, and squeezing it, nu-
 merous drops about the size of a large pin's head
 of Cream white fluid exuded from the surface
 of the section. This dense mass extended through
 the whole thickness of the gland, and was intimate-
 ly adherent to the skin above, & to the pectoris of mus-
 cle removed along with it, below. When a drop
 of the creamy fluid above alluded to was ex-
 amined under a microscope. (280 lines) no trace
 of a cell could be seen, but the field was crowded with Fig: 40.
 transparent bodies like nuclei, round or oval with an

average diameter of $\frac{1}{2200}$ inch, and but little affected by the action of Acetic acid. These were either solitary or aggregated together in groups. Mixed up with these was a large quantity of oil globules, & granular matter, and a few compound granular cells. On making a thin section of the morbid mass with a Valentini's knife, adding to it a drop of Acetic acid, & placing it under the microscope, it was found to consist of white fibrous tissue arranged so as to leave or numerous Circular Spaces. about $\frac{1}{200}$ inch in diam. - Infiltrated through the meshes of this fibrous tissue were the elements of the milky juice above described. Remarks. I have been induced to place this tumour among Cancerous growths, notwithstanding that none of the cellular element ordinarily present in Cancer, could be detected in it, in the first place from its general aspect and its intimate adhesion to the neighbouring textures, & secondly, from the presence of the milky juice, both of which characters exactly corresponded to what we usually find in Cancer. I may state that Dr. Gairdner, pathologist to the Royal Infirmary thought no doubt could exist as to the matter. Fig: 41.

#1. Obsv. on *Cancerus Hameroid* growths p. 176.

#2. Obsv^{ns} 27. & 28. & 47. &c.

Very few Petiole-nucleated growths have as yet been examined - could
this be one which had referred - a true *Canceroid*? - PAK.

absence of cells was not due to putrefaction, for the tumour was examined immediately after its removal. But though no perfect cells could be detected, yet still there was a sufficient amount of the debris of cells, in the form of oily & albuminous granules, to render it highly probable that the cells had become broken down & disintegrated. The tumour could not with propriety be classed with those tumours which have been described by Dr. Bennett ^{x¹} under the name "Fibro-nucleated"; for in none of the tumours, described by that author, or which I have myself examined, ^{x²} was there ever found a thick creamy juice. It is doubtful whether the bodies like nuclei, had been ^{the} nuclei of Cancer cells. Probably not; for from finding bodies not unlike them in the healthy mammary, I think it more likely, that they were derived from the glandular structure of the organ.

Observation XXVII.

Fibro-nucleated. Tumour in Mammary Region. Excision. Cure. On the 7th of Decem^r. 1850 Mr. Byrne excised a small tumour from the mammary region of a middle aged married lady. It was situated immedi-

ately under the integuments, two or three inches above and to the outer side of the nipple. An incision was made through the integuments down upon the tumour, which was then grasped with a hook & dissected out.

Examination of the Tumour after removal. It was about the size and shape of a common French bean & of rather firm consistence. On section, the cut surface was smooth & of a greyish white colour. It contained no milky juice, but on scraping the surface of the section with a knife, a slight quantity of watery fluid was collected on its edge, which on microscopic examination was found to contain round & oval bodies like nuclei. These had a diam^r of about $\frac{2}{400}$ inch. They were either isolated or adhered by their edges. They were transparent, some containing a one or two granules in their interior others not. Acetic Acid did not seem to affect them in any great degree. A thin section showed these bodies distributed through a fibrous stroma in a manner similar to what is represented in fig. 42.

Fig: 42.

Remarks. This Tumour belonged to a class of Tumours which are generally classed along with true fibrous

tumours, but which Dr. Bennett has separated into a distinct class, under the title of fibro nucleated. These tumours are not uncommon in the neighbourhood of glandular organs such as the mammae. There was no connection, however in this case between the tumour and the gland. See Page.

Observation XXVIII.

Fibro-nucleated Tumour in the soft palate. Excision. Cure. History. Catherine B. — act: 25 a servant was admitted into the Royal Infirmary under the care of Mr. Syne on the 21st of January 1857. on account of a tumour in the left side of the soft palate, situated between the raphe & the left tonsil. On looking into the mouth not much yet could be seen — only a slight bulging with increased vascularity of the mucous membrane. On introducing the finger the tumour could be felt of a rounded form & rather firm consistence. The only inconvenience from it of which she complained ^{was} occasionally pain when it was touched or when she swallowed anything. It was about 12 months before when she first observed it, but it was then of much smaller size. — On the 24th of Jan 7. Mr. Syne removed the tumour in the following way

The Patient was made open her mouth as wide as possible. A sharp hook was introduced into the mucous membrane over the tumour, which was then divided with a bistoury; the hook was again inserted into the substance of the tumour, & the latter dissected out. The palate was not cut through. In the course of a few days after the operation, the patient had quite recovered.

Examination of the Tumour. Its form was almost globular, and its size about that of a small marble. It was of firm consistence. On making a section through its centre, it presented a smooth surface of a yellowish white colour. No milky juice exuded from it on pressure, but on scraping the surface of the section, a small quantity of a watery fluid was collected on the edge of the knife. On placing this under the microscope there were detected in it numerous minute bodies which seemed to be of the nature of nuclei. They were of a round, oval, or elliptical form with an average diameter of $\frac{1}{2000}$ inch. They were of a greyish colour, little affected by the action of Acetic acid, and each contained in its interior one or more small granules. They occurred isolated, or adhering by their edges in masses. Slipped up with them there was a good

deal of fine granular matter. On making a thin section of the tumour with a Valentini's Knife, & after adding to it a drop of Acetic Acid, examining it under the microscope, it presented an appearance similar to fig: 44. — a fibrous tissue with a number of the nuclear like bodies just alluded to imbedded among its fibrillae — Through the whole of the tumour there was a pretty dense network of capillary blood vessels.

Fig: 44.

Remarks. This tumour bore a very close resemblance to the one last described, and evidently belonged, like it, to the class of fibro-nucleated tumours, ^{described by Dr. Bennett} The peculiarity of its situation, which is indeed a rare one for any form of growth, added additional interest to it.

Observation XXIX.

Cystic tumour of the Mamma. Excision. Cure.

History. Mrs. — aet. 60 had her right mamma excised by Mr. Syne on the 20th of August 1850 on account of a cystic tumour. The right mamma was considerably larger ^{than} the left. Immediately below the retracted nipple there was a distinct feeling of fluctuation over the space of about half a crown piece.

The integuments over the same space were thin & of a bluish colour. Over the surface of the tumour there were several other ^{smaller} fluctuating points with discoloration of the integuments, two about the size of a shilling piece being immediately above the dipple. The tumour had been growing for upwards of seven years. It had never been the seat of much pain, but she was anxious to have it removed out of anxiety, lest it should burst. The patient had no bad symptoms after the operation, and the wound had almost completely cicatrized in the course of a fortnight.

Description of the Tumour. The whole mass removed weighed upwards of 6g: avoird: It was of a semi-globular shape, flat towards the muscle, convex towards the skin. It consisted of an elliptical portion of the integuments with the dipple in its centre, of the tumour itself involving the gland, & of a considerable amount of the surrounding fat. The tumour was composed almost entirely of cysts containing fluid, imbedded in white fibrous tissue, and the atrophied remains of the mammary gland. The largest of these cysts about the size of a hen's egg, was the one which was seen before the operation shining through the integu-

*1. The lining membrane of the cysts was thin and presented a smooth serous like aspect. It seemed very vascular.

ments below the nipple. Five or six other cysts about the size of cherries or plums were found in the anterior portion of the tumour - Each of these cysts were quite distinct from one another, being separated by a quantity of areolar tissue. The original structure of the mamma seemed quite obliterated. The under surface of the tumour was very hard, approaching in some parts almost to the consistency of cartilage. On careful examination, however, this dense substance was found to be composed of a multitude of small cysts closely aggregated together. The contents of the cysts varied somewhat - The larger of them contained a thick brownish red fluid, glittering with shining scales of cholesterol, in all respects resembling the fluid of hematocele. Lining the inner surface of some of the cysts was a thick muddy deposit, somewhat of the colour and consistency of coffee grounds - In the smaller cysts, the fluid was of a light buff colour, in place of dark brown. On opening some of the cysts, their cavity was found almost entirely filled up by a cauliflower like excrescence, attached to the inner surface of the cyst & growing inwards. This was of firm consistency, of a greyish white colour, & presented on section a structure apparently fibrous - Its external surface

which was rough & nodulated was bathed by the ordinary fluid contents of the cyst. - A drop of the reddish brown fluid from one of the cysts, when examined microscopically, presented exactly the same structure as are found in the fluid of a haematocle. In the first place there was a great abundance of scales of Cholesteroline - Some of these were hexagonal, & not unlike simple crystals of cystic oxide. - Secondly, blood corpuscles, some of them with smooth but most with serrated edges. Thirdly, Compound granular cells and masses; many of these were of large size $\frac{1}{500}$ inch, and were seen disintegrating into, oil globules & granular matter, of which there was a great abundance in the fluid. - Scattered over the field there were also a few nucleated scales ($\frac{1}{350}$ in) presenting the ordinary characters of Epithelium. The contents of the smaller cysts only differed in possessing fewer ^{Blood} corpuscles. On examining microscopically a minute portion of one of the cauliflower excrescences from the interior of a cyst, it was found to be made up of a very fine wavy fibrous tissue, along with a number of fibro-plastic & fusiform cells, the cells being most abundant at some parts, & the fibrous tissue at others. Each of the cells contained a round or oval nucleus, which

Fig: 45.

Fig: 46.

* Miller. Op. citat: page 172.

after ^{the} action of Acetic acid presented a rather granular surface. A few of the cells were seen splitting up at their extremities. The fusiform cells were arranged with their long axes running principally in one direction. These cells presented all the characters of the fibro-plastic & fusiform cells described by Robert & Bennett, & the whole appearance afforded a remarkable analogy to that of ^{semi-organized} fibrous excrescences, so often met with on the surfaces of the Pleura & Pericardium.

Remarks. The above tumour belonged to that class which have been denominated by Muller *Cystosarcomatous*, consisting from aggregation of cysts imbedded in a solid mass of fibrous tissue, the cystic structure, however, greatly preponderating over the other. From the presence of the cauliflower excrescences in the interior of some of the cysts, it seemed to belong to that variety of *Cystosarcomatous* growths described by Muller under the name of *Cystosarcoma phyllodes*. These cauliflower excrescences evidently consisted of lymph undergoing organization. This lymph may have been seceded from the vessels in the walls of the cysts, but more probably it was derived from extravasated blood which had become decolorized.

The fluid contents of the cysts precisely resembled in appearance the contents of an ordinary haematocoele of the *Funicus vaginalis* - Like this, it evidently consisted of blood undergoing change, and contained the same microscopic elements, Cholesterine, Compound granular cells, &c., which we find in blood which has been extravasated for a considerable time.

As regards the malignancy of the above tumour, it was evidently not Cancerous - It consisted of simple cysts imbedded in a fibrous (not a Cancerous tissue). It exhibited no tendency to contaminate the lymphatic glands, or to affect the system so as to appear in different parts of the body, and no tendency to be reproduced after removal - Had the operation not been performed, however, there could be no doubt that the integuments over the large cyst would have soon ulcerated and led to very distressing symptoms both locally and constitutionally -

Observation XXX.

Fibrous Tumour of the Mamma - Excision - Cure.

History - Ann R. — act 37 a married woman was admitted as a patient of Mr. Syms into the Royal Infirmary on the 11th of Sept. 1850. on account of a tumour of the right Mamma. The whole gland seemed generally enlarged, and fully double the size of the left one, & also of much harder consistence. ^{There was no protrusion of the nipple} She stated that she had first observed a fullness of her right breast 9 months before, & that it (whether it had been increasing), and had often been the seat of sharp shooting pains - She had no swelling in her Axilla, and was in the enjoyment of good health. - On Sept. 12th the patient was brought under the influence of Chloroform, and Mr. Syms, after making an elliptical incision through the integuments, excised the whole of the mamma along with a considerable quantity of the surrounding fat. Several vessels were tied, & the edges of the wound were kept together by sutures - By the 28th of Sept. the wound had quite cicatrized, and the patient was dismissed from the hospital, cured.

Examination of the part removed. This weighed almost 1 lb. avoird. It consisted of an elliptical portion of the skin with the nipple in the centre, and a large quantity of fat imbedded in which was the tumour involving the whole of the Mamma. On making a section through this, it

presented a dense fibrous structure. The surface of the section was of a greyish colour - Over the surface of the section several small patches might be seen, $\frac{1}{4}$ inch in diam., of a pinkish grey colour, of a softer consistence than the rest of the tumour - These on examination were found to be portions of the glandular substance of the Mamma unaltered. No juice could be squeezed from the surface of a section by pressure; but on scraping it with the edge of a knife, & examining with the Microscope, a few flaky particles collected on this, it was found to consist for the most part of oil (milk) globules, & granular matter - There were also a few Compound granular (Colostrum) cells of a brownish pink colour, and several oval nucleated cells, about $\frac{1}{1000}$ in. in their long diameter - These showed a tendency to adhere together by their edges, & were but little changed by the action of Acetic acid. A thin section of the tumour examined microscopically, exhibited a dense fibrous stroma, the fibres of which ran in almost every direction - There were both yellow & white fibres. At one or two places the ducts of the Mammary gland might be seen quite normal & containing in their interior oval nucleated cells, ^{&c.} similar to those above described.

Fig. 47.

Remarks - This tumour could not be regarded as of a Cancerous nature at all events at the stage of growth

at which it was removed, for no milky juice could be obtained from it, & it contained no cancer cells or nuclei - The few cells found in what was scraped from the surface of a section were evidently epithelium cells derived from the interior of the Mammary ducts. The Tumour seemed in fact to be an example of a simple hypertrophy of the fibrous tissue of the mamma, with the effect of obliterating, to a certain extent its secreting structure, and bore a close resemblance to a similar tumour described by Dr. Bennett in his 36th observation on Cancerous & Canceroid growths p. 82.

Observation XXXI.

Fibrous Tumour of Cheek - Excision - Cure.

History - Dorothea W. - aet. 21 Worker in a paper factory was admitted into the Royal Infirmary on the 7th of October 1850 on account of a tumour of the right cheek situated right over the Parotid gland. The tumour was about the size of a man's fist. Anteriorly, it extended to within 2 inches of the mouth and the external angle of the right eye. Posteriorly, it formed a globular protuberance about the size of a large orange projecting behind the ascending ramus of the jaw, & raising up on its surface the lobe of the ear. As to consistence the greater part of the tumour was firm & hard, except at its most prominent part, which imparted to the finger a feeling of great elasticity, almost ap-

proaching to fluctuation. The Tumour itself was quite movable, as also the integuments over its surface. It had been growing for 8 years. When it was of small size it was confined to the space between the ear & the ramus of jaw - She had never any pain in it; and her general health was

good. On the 11th of October, after the Patient had been brought under the influence of Chloroform, Mr. Byrne proceeded to remove the Tumour. A λ incision was made through the integuments, the three flaps dissected back, and the tumour cut out. The flaps were then brought together by Sutures. The wound healed almost entirely by the first intention & by the 22nd of October had quite cicatrized.

Description of the Tumour after removal. It weighed $9\frac{3}{4}$ oz; avoird. It consisted of two portions, a larger, corresponding to the anterior part of the tumour, & projecting from one part of its surface a smaller globular portion, about the size of a large orange which corresponded to what had been the most prominent part of the tumour before removal. The whole tumour was enveloped in a strong fibrous envelope or cyst, which could be peeled off with great facility. On making a section through the centre of the tumour from before backwards, the anterior part of the tumour which had been over the cheek, was found to consist in the centre of a yellowish very dense substance, grating like Cartilage under the knife. This gradually became softer towards the ^{Circumference} ~~periphery~~ of the tumour, where its consistence was al-

most gelatinous. The posterior rounded part of the tumour was soft & gelatinous throughout, and of a greyish white colour, and yielded freely to pressure made with the point of the finger. On examining microscopically a thin section made with a double bladed knife of the denser portion of the tumour, it was found to consist almost entirely of a very dense network of fibres, a great proportion of which were of the yellow elastic variety. - As the circumference of the tumour was approached, the fibrous network gradually became less dense, until it almost entirely disappeared, and ~~there~~ was substituted for it nucleated cells and oil globules, of which the softer portions of the tumour was almost entirely composed. - Some of the cells are represented in fig 49. - Many of them were round with an average diameter of $\frac{1}{900}$ to $\frac{1}{1000}$ inch. Others were oval or pyriform, while many were still more elongated. Each cell contained a small rounded nucleus $\frac{1}{2200}$ inch, and between the nucleus & cell wall a small quantity of granular matter. The quantity of oil globules was considerable. They were most of small size ($\frac{1}{1000}$) ^{often} arranged in clusters.

Remarks. This tumour I think must be regarded as an example of a fibrous growth, different parts of

Fig: 48.

Fig: 49.

which, however, differed widely from one another both in appearance and structure, one portion being of extreme density, and consisting entirely of fibrous tissue, while another was of soft and almost gelatinous consistence, and was entirely composed of nucleated cells, oil globules, and granular matter. The cells seemed to be fusiform and fibro-plastic cells - undergoing a transformation into fibres - The cause of the presence of so much oily matter it is difficult to explain: except that the tumour was commencing to undergo a process of softening, and that as the result, or perhaps the cause of this a quantity of oily matter had made its appearance, softening and the formation of oily matter, being as we know, not uncommon coincidences in the tissues of the human body, both healthy & morbid.

Observation XXXII.

Spermatocele. Tapped. Injected with Iodine Cure.
 History. L. B. — aet. 60 consulted Mr. Sympson on the 12th of Sept. 1850 on account of a large fluctuating tumour on the left side of his Scrotum. The testicle was not involved in the swelling, but situated quite at its lower part. The pa-

light stated

That the swelling had existed for 20 years. For a long time it had remained very small but latterly it had been increasing in size more rapidly. The tumour was punctured with a trocar & of $\frac{2}{3}$ of a watery fluid drawn off. Two drachms of pure Tincture of Iodine were then projected into the cavity, and the scrotum was then well shaken. After the operation there was again considerable swelling of the scrotum for a few days, but this soon subsided, in the course of a fortnight had completely disappeared.

Description of the fluid - It was of a white colour, and slightly opalescent. When allowed to stand for some time a slight quantity of a flaky deposit fell to the bottom of the containing vessel. On pouring off the supernatant fluid and placing under the Microscope a drop of the fluid containing the deposit numerous spermatic animals were observed swimming about in the field of the microscope. There were seen alive fully 15 hours after the removal of the fluid. Along with the spermatic animals were a very few nucleated Epithelium scales. - On treating a little of the fluid in a tube it was almost completely converted into a coagulum of Albumen.

Remarks. The above affords an example of a Complaint not

*¹. Observations et Reflexions sur la Fistule Spermatique ou
Spermatocele. in Journ. gen. de Médecine June 1826 p. 348.

*². Edin^g Monthly Med. Journal 1850.

*³. The Cyst of a Spermatocele is also in general much thicker
than that of a Hydrocele.

viz. Spermatocele.

uncommon - The pathology of Spermatocele has been but little studied - Breschet who wrote a work on the disease attributed its origin to a swelling of the spermatic cord, and especially, of the epididymis, depending on retention of the semen. ^{1.} This may be the case, but I am not aware that it has been yet shown what leads to this retention of the semen. The difference between the fluid of a hydrocele and that of a spermatocele is generally so great, as to be quite evident to the naked eye, the former being transparent & straw-coloured, the latter white and slightly opalescent. Microscopic examination, however, is the only test which can with certainty be relied on. and not long ago when it would have been thought highly dangerous to have treated a spermatocele by way of injection, this means of diagnosis should never have been neglected. But now, since it has been shown by Mr. Syne ^{2.} that a spermatocele may not only be injected with impunity, but that its injection, as in the case of hydrocele, constitutes a certain means of cure, microscopic examination is not so necessary - In the above case, as is usual in Spermatocele, the Testicle was situated at the lower part of the tunica. ^{3.}

Observation XXXIII.

Sanguineous Cyst.

Eosinotocele in Axilla - Tapped - Injected with Iodine - Cured.

History - A — B — act: 6 a Coal Miner's daughter from Dursfermline was admitted ^{into} the Infirmary under the care of Mr. Syre on the 9th Decem^r 1850 on account of a large tumour in the left axilla. This had first been observed when she was only 2 years old. & since then it had gradually been increasing in size. On admission it was about the size of a large Melon, of a globular form, & smooth surface. Laterally it extended from the left nipple to the external border of the Scapula, measuring over its Convexity 7 inches. In the opposite direction it extended from the angle of the axilla to the lower margin of the 8th rib. measuring $5\frac{3}{4}$ inches over its Convexity. The consistence of the tumour was very peculiar: Some who examined it declaring that there was distinct fluctuation in it, while others maintained that this feeling was produced by the great elasticity of some solid substance. There was no pain in it, even on handling it freely. On Dec: 16th Mr. Syre punctured the tumour, and drew off with a Canula f. $\frac{2}{3}$ XXIV of a dark bloody fluid. Three days after (Dec: 19th) there was a slight reaccumulation of fluid, of $\frac{2}{3}$ VI of which,

*1. While the supernatant fluid was ^{almost} transparent &
straw coloured.

Similar to the last, were then drawn off, and two drachms of pure Tincture of Iodine injected into the cavity. The operation was not followed by any bad symptoms. There was again a considerable reaccumulation of fluid, but after four days this had begun to subside, and in the course of a fortnight had completely disappeared.

Description of the fluid drawn off. Its colour was a dark reddish brown, and after standing for some time, there was deposited from it a dark brown finely granular sediment. On examining a drop of the fluid under the microscope, two sorts of bodies were discovered floating in a clear transparent fluid. 1. Blood Corpuscles. There were exceedingly numerous, and in fact seemed to constitute the greater part of the fluid. The majority of them presented a perfectly natural appearance with their edges quite smooth & entire. A few had their edges serrated, more or less irregular. They showed a considerable tendency to adhere together by their flat surfaces in rolls. 2. Along with the Blood Corpuscles were a few rounded transparent cells with a diameter varying from $\frac{1}{1500}$ to $\frac{1}{3500}$ - None of these seemed to possess a distinct nucleus, but each contained

*' Thus in the same way a hydrocele may be converted into a haematocele.

in its interior, several transparent globules, dissolved by ether, & a few granules of a brownish colour. The amount of these cells bore a very small proportion to that of the Blood Corpuscle - Only 3 or 4 could be got into the field of the microscope at once. They were quite different from white blood Corpuscles. No Cholesteroline, oil globules, or granular matter existed in the fluid.

Remarks. The above fluid very closely resembled, the fluid of the ordinary haematocele of the Tunica vaginalis - The mode of origin of haematocele is still buried in obscurity. It no doubt depends on the effusion of blood into a cavity from some part of the circulation - In the above case I think it highly probable, that the blood was not extravasated until shortly before the operation; for it had undergone but little change, and there were none of those elements present which are generally found in collections of blood long extravasated. (Cholesteroline &c.) I am therefore of opinion, that the Haemorrhage at first depended on the collection of clear fluid, and that blood was afterwards extravasated into this not improbably owing to the great Manipulation to which the tumour was subjected after the

patients admission into hospital.

The existence of a cyst containing almost nothing but pure blood, of the size, and in the situation of the one above described, is certainly very rare. I myself have never met with a description of a case of similar nature. The above case is therefore well worthy of interest. No less interesting is the success which followed the means adopted to afford relief. For, if the same means of treatment are applicable to the analogous cases of *Haematoceles* of the scrotum, it will be a great improvement in the practice of Surgery.

Observation. XXXIV.

Fibro-cystic tumour of the Mammary - Excision - Cure.
 History
 On the 30th of Decemr. 1850 Mr. Syme excised the left Mammary of a middle aged lady, on account of a large tumour involving the whole substance of the gland. Before removal it presented a globular form. The nipple was retracted, and the integuments immediately above the nipple presented a blue discoloration. Distinct fluctuation could be felt at different points over the surface of the upper half of the tumour. There was no enlargement of the glands in the axilla. An elliptical incision was made through the integuments

including the nipple, and the tumour then dissected out. - Several vessels were tied - The edges of the wound were approximated by sutures - By the end of three weeks the wound had quite cicatrized and the patient was in good health -

Description of the part removed. - The whole mass weighed 1 lb. 1 3/4 oz. avoird. It consisted of the tumour itself with a small quantity of fat, and an elliptical portion of the skin 6 inches long & 2 inches broad at its middle where the nipple was. - The tumour presented a hemispherical form, the anterior surface being convex, while the surface next the pectoral muscle was flat, & but loosely connected to it by a small quantity of lax areolar tissue. The anterior surface was pretty firmly adherent to the integuments, especially at the discoloured portions of the latter - This discoloration was found to be owing to the dark colour of the contents of cysts lying immediately under the skin. When a section was made longitudinally, right through the centre of the tumour, no trace whatever of the normal tissue of the mammary gland could be made out, but the ^{tumour} was found to be composed of two adventitious structures quite distinct from one another - That which

composed the upper two-thirds of the tumour consisted almost entirely of cysts, while the lower third presented a structure precisely similar to those fibrous tumours known to surgeons under the name of Pancreatic sarcomas. The two portions were quite separated from one another by a deep fissure, being only connected by a fibrous envelope enveloping the whole of the tumour. The side of this fissure next the fibrous portion of the tumour was smooth & glistening, so that on viewing the whole of the upper part, it gave one the idea of one large cyst, from the sides of which other smaller cysts projected inwards, so as almost completely to fill its cavity. This opinion was confirmed by the surfaces of the smaller cysts being bathed by a fluid exactly similar to what was found in some of themselves. This was of a dark reddish brown colour and deposited a brownish sediment on standing. It was found to contain on microscopic examination numerous Blood corpuscles, compound granular cells & oil globules. & a quantity of albuminous granules - also a few nucleated cells which presented the following characters. They were quite transparent, for the most part of a globular shape, and the largest had

a diameter of about $\frac{1}{50}$ inch - Each contained a round transparent nucleus attached to one part of the cell wall - They were partly isolated, and partly adherent together in small clusters - Acetic Acid rendered the cell wall more transparent while the Nucleus presented a slightly granular aspect. The contents of the smaller cysts were very various. Some of them contained a fluid the same as that just described - In others (the smallest) there was a perfectly transparent limpid fluid, which exhibited nothing under the microscope but a few nucleated cells & granules - Others contained a fluid Fig: 53. intermediate between these two, the fluid having a slight reddish tinge, & containing Blood Corpuscles & Comp. Granular cells, in addition to Nucleated cells & granular matter - In one or two of these last cysts the walls, which were quite transparent, presented one or two circular spots about 1 line in diameter of a reddish color, & resembling small ecchymoses. When magnified, one of these spots exhibited a very dense work of Capillary bloodvessels, but I Fig: 56. could not satisfy myself as to there being any extravasated blood - But the two largest cysts were full of a solid substance - This was of a greyish

41. Answer: XXXIX.

colour, & of a gelatinous consistence. Microscopic Examination showed this to be made up of fibrous plastic & fusiform nucleated cells, & of a very delicate filamentous tissue - The size of the cysts varied greatly, the smallest not being larger than a pea, while others were fully larger than a hen's egg. Their sides fitted into one another & their free surfaces were bathed by a reddish brown fluid as above mentioned.

Fig: 54.

The lower third of the tumour presented a greyish colour with a slight tinge of pink - the cut surface was very irregular, being covered with numerous fissures, which ran through the whole substance of the tumour. When a small part of it was examined under a microscope (800 linear) it was found to consist of fibrous tissue with numerous bodies like nuclei imbedded between the fibres & adhering together in masses. These were round or oval, with a diameter of $\frac{1}{2500}$ inch & were little affected by the action of Acetic acid.

Fig: 55.

Remarks. The above tumour, like are already described, belonged to the class, which has been named by Cellular Cystosarcomatous, consisting of cysts, imbedded in this case in the substance of a fibrous tumour. At the lower part the cysts were entirely absent

and the appearance of the tumour exactly resembled that of these tumours, called by Surgeons "Pancreatic Sarcinota": and in structure it consisted of fibres with numerous naked nuclei. In the upper part of the tumour, on the other hand, the cysts greatly predominated over the fibrous tissue. Indeed as already mentioned, there appeared to be but one large cyst with a number of smaller ones attached to its inner surface, resembling in this respect that variety of Cystosarcomatous tumours mentioned by Muller under the name of "Cystosarcoma proliferans". The contents of these cysts varied, some containing a serous albuminous fluid, others this with a few blood globules, others semiorganized lymph, and others blood undergoing change.

The coincidence of vascular spots on the inner surface of the membrane of the cyst, with the first appearance, as it were of blood corpuscles in the contents, is worthy of notice. (See Page 63.)

Observation XXXV.

(Dyphnoma?) Tumour in Lumbar region. Excision - Cure.
 History. Peter Watson aet: 49. Since born was admitted
 into the Royal Infirmary under the care of Mr
 Syre on the 20th of Novemb. 1850 on account of a
 large tumour ⁱⁿ the right lumbar region of the back.
 It was as large as a Child's head. It extended from
 the crest of the Ilium to within 4 inches of the lower
 angle of the Scapula & laterally from the Spines of
 the vertebrae fully 6 inches to the right. It measured
 round its base fully 18 inches. The tumour was
 most prominent at its lower extremity where there
 was a globular bulging from its general surface
 about the size of an Orange, over which the integu-
 ments were thin & of a bluish colour. At this part
 too the consistence of the tumour was very elastic
 almost approaching to fluctuation. Over the surface
 of the tumour, which was rather uneven, there
 were one or two other very elastic points. It felt
 more solid towards its base. The integuments
 at some places were very adherent to the tumour,
 but the latter moved freely on the subjacent muscle.
 The Tumour had been growing for upwards of 4
 years, and its origin was attributed to ^a blow receiv-

ed on the side from a piece of coal which broke three ribs. The patient stated that he had never had any pain in the tumour until three months before admission, but since then he had often felt sharp pains shooting through it. He was a man of rather spare habit, but his general health was good. On Nov. 24th the patient having been brought under the influence of Chloroform, Mr. Syre proceeded to remove the tumour. A crucial incision was made through the integuments, leaving an elliptical portion adhering to the tumour - The four flaps were then dissected back, & the tumour removed with great facility. Five or six ^{small} vessels were tied, & the flaps were brought together by sutures. No bad symptoms manifested itself after the operation, & in the course of five weeks the wound had quite cicatrized.

Description of the Tumour after removal. It was of an irregular somewhat ovate form, and weighed 2 lbs. 12 1/2 oz: Avoid: At some parts of its upper surface it was closely adherent to the skin, at others less so, a small quantity of adipose tissue being interposed. It was very loosely adherent to the muscle beneath, but a few fasciculi of the Latissimus

sinus dorsi overlapped its lower extremity. When
 a section was made through the centre of the tu-
 mour, the cut surface exhibited two substances
 which presented a very different appearance.
 One of these was hard & dense, of a yellowish
 colour, and occupied the central part of the tu-
 mour principally, radiating processes being
 sent out from it towards the circumference. In
 the meshes formed by these processes was contain-
 ed the other constituent of the tumour, which was
 of much softer consistence, translucent, & of a ^{greyish}
 white colour. It contained a large quantity of a
 watery fluid which exuded on pressure. Both
 constituents of the tumour were pervaded, by a num-
 ber of tubular vessels very like the ducts of the mam-
 mary gland. When the tumour was examined
 microscopically, the hard central portion was found
 to be made up of a dense network of fibrous tissue
 the greater part of which seemed to be of the yellow
 elastic kind - A drop of the watery fluid from
 the softer part of the tumour was found to contain
 a number of transparent rounded bodies about Fig: 57.
 $\frac{1}{2000}$ in diameter. Their outline though approaching
 to round was rather irregular. Each of these

bodies contained in its interior not a distinct nucleus, but from two to eight isolated granules. A few of these bodies, however, which were somewhat larger. (Some $\frac{1}{500}$ inch) were loaded with granules, so as to resemble ordinary compound granular cells. Mixed up with these bodies was a quantity of albuminous granular matter & oil globules. The duct like tubes contained in their interior the elements just alluded to, but every attempt made to trace these to their ultimate terminations failed. A trans section made with a Valentini's knife through the softer portion of the tumour, exhibited the above mentioned granules & corpuscles arranged in masses in the meshes of a fine fibrous tissue. I cannot say that I could make out these masses to be contained within a distinct membrane.

Fig: 58.

Remarks. The nature of the tumour just described I am totally ignorant of, & Dr. Gairdner, the pathologist of the Royal Infirmary, to whom it was shown, said he had never seen one like it. Mr. Byrne and others seemed to regard it as of a malignant character, but from this opinion I am rather inclined to differ. The presence of ducts containing corpuscles, &c. not unlike those found in the ducts of certain

41. Monthly Journal of Medical Science (Edinb) Nov. 1846.

glands, would seem to indicate that the tumour was of some sort of glandular nature - But to determine from such a tumour could have originated, & from what healthy tissue it could have been developed, would have required a more careful examination of the connections of the tumour to all the neighbouring parts than the circumstances would permit, and a study of other tumours of a similar nature, none of which, however, that I know of, have as yet been recorded. -

Since writing the above, I have met with the description of a tumour, examined by Heule, and named by him "Syllonoma." The description of this tumour coincides in many respects with that under consideration - * (See Page. 70.)

Observation XXXVI.

Epithelial Tumour of Penis - Amputation - Cure.

^{History} On January 29th 1857. Dr. Dunscombe in the Royal Infirmary performed amputation through the middle of the penis of J. M. a. aet: 48, on account of a warty excrescence growing from the prepuce, and involving the glans. The man was a highlander,

*' except that he had previously laboured from congenital phy-
- = nodis -

and could speak no English, and no history of his complaint could be obtained. ^{x¹} There was no enlargement of the glands in the groin, and the patient's general health was good. - On March 1st he was dismissed from the hospital cured, no bad symptom having manifested itself after the operation.

Examination of the part removed. This consisted of nearly one half of the penis along with the morbid growth. On the outer aspect of the prepuce there was a warty excrescence of a circular form, and covering a space about equal to the size of a halfpenny, and projecting about $\frac{1}{4}$ inch from ^{the} surface. The surface of this excrescence was rough and nodulated, and its substance deeply fissured. The prepuce was tightly contracted at its orifice, so that it was impossible to retract it over the glans. An incision was made along its dorsal aspect, and its inner surface was then found to be lined with a warty excrescence, similar to that on the outer surface of the prepuce, fissured like it, but with its general surface, which had been in contact with the glans, more uniform. The surface of the glans also presented a rough and warty appearance, which was most distinct at the Corona, between which and the excrescences from the

prepuce there were some slight adhesions. The surface of these excrescences was moistened with a puriform discharge of a dirty yellow colour which microscopic examination showed to consist of pus corpuscles, granular matter, & nucleated cells presenting all the characters of Epithelium^(Fig 59). On cutting into the substance of a portion of the morbid mass, it presented a dense structure of a greyish white colour, and which consisted entirely of nucleated cells similar to those found floating about in the discharge. Many of them were elongated, and adhered to one another with their long axes pursuing in one direction. They all exhibited a tendency to adhere by their edges. They were little affected by the action of Acetic acid. The structure, which these cells composed, contained no blood vessels, but the tissue (submucous) beneath them was red, and very vascular.

Fig: 59.

Fig: 60.

Remarks. This Tumor is a good example of those warty excrescences composed of Epithelium cells, commonly denominated Epithelium Cancer, or when on the penis or scrotum Chimney Sweep's Cancer. Like true cancer these growths are liable to be reproduced after removal, but in general they possess more

* See Page 43. - See also case related of Clinico-
surgery sweeps cancer in Lancet for March 15th 1857. p.294.

* This case was afterwards described by Paget in his "Lectures
on Surgical Pathology - Vol. II, 1859 - for conclusion of Case, refer
to this. -

of the other malignant characters of Cancer. They are sometimes accompanied with enlargement of the lymphatic glands, but this enlargement often seems to result merely from irritation, and disappears when the irritating cause is removed, and is not owing to the deposition of a matter similar to that composing the original tumour. Mr. Spence of this City, informs me, that he knows a case in which the penis was amputated on account of growths similar to the above, with enlargement of the inguinal glands, 12 years ago. After the operation the glandular enlargement disappeared, and the patient is still alive, and has continued free from any return of the disease. At the same time we must allow that the glandular enlargement accompanying Chirivrey & Sweep's Cancer is not always of such a simple nature⁺, so that its presence to any extent must always be regarded as a measure contraindicating any operative interference in such cases.

Observation XXXVII.

Recurrent fibro-nucleated tumour in sub-clavicular region. Excision. Cure.
 History
 On January 30th 1851 Mr. Spence excised a tumour situ-

ated beneath the integuments immediately below the right clavicle of a gentleman aged 60. Mr. Byrne had twice before, at intervals of two or three years, removed a tumour presenting similar characters from the same region of the Body; and from careful examination during these intervals had satisfied himself that the removal each time was complete. A tumour, however, had always been reproduced in the original site. The present one was about the size of a small orange, of a rounded compressed form. Its consistence was firm, but not hard. It was situated immediately beneath the skin, which at its centre was pretty firmly adherent to it. In addition to this tumour, which was just above the cicatrix of the wounds resulting from the previous Operations, a process seemed to extend downwards from it along the whole course of the cicatrix ($2\frac{1}{2}$ inches long) which was inseparably connected to the skin. These tumours did not cause the patient much pain. There was no enlargement of the glands in the axilla, and the general health was good. The upper, larger part of the tumour was removed by dissecting off the integuments in the form of two flaps, but the process remaining along the cicatrix was removed along with the

cicatrix and skin to which it adhered. No bad symptoms occurred. At the end of a fortnight the wound had almost completely cicatrized, and at that time there was no appearance of any return of the disease.

Examination of the Tumor. - The larger mass of the tumour was rounded, about the size of a small orange, but of a much more compressed form. On making a section through it, the cut surface was seen to be smooth and of a greyish white colour, and the consistence of the mass not unlike that of a gelatinous nasal polypus, but if anything rather firmer. It could be torn with the fingers, and then exhibited a sort of fibrous structure, fine filaments passing from the one tumor surface to the other. On scraping with a knife the cut surface of a section of the tumour, a small quantity of a watery fluid was collected on its edge. A drop of this examined under the microscope (280 lines) exhibited an appearance represented in Fig. 61. - It contained nucleated cells, naked nuclei, and fine albuminous granules suspended in a transparent fluid. The cells were mostly of small size $\frac{1}{500}$ to $\frac{1}{2500}$ inch. Some were round, but most of them were more or less elongated. Each contained a single distinct round nucleus ($\frac{1}{500}$ inch in diam.) rendered far more distinct by the action

Fig. 61.

of Acetic acid. The cell walls were very delicate and transparent. The cells presented all the characters of fibroplastic and fusiform cells; On teasing out with needles a minute portion of the tumour, it was found to consist of round and elongated cells similar to the above, the latter being arranged with their long axes running in one direction. At some parts there were fully formed fibrous tissue, the filaments of which, however, were so fine and delicate, that they only became visible when the supply of light to the field of the microscope was very limited. After the addition of a drop of Acetic acid numerous elongated nuclei might be seen imbedded among the filaments. A portion of the process of the tumour, which was adherent to the cicatrix and surrounding skin, exhibited on examination precisely the same structure and appearance as the above. On making a section with a Valentini's knife through the skin into the substance of the morbid tissue, the latter was seen to commence immediately beneath the cutis vera; along its margin the elongated cells were seen arranged with their long axes perpendicular to the skin. So as to impart to the section a very beautiful appearance.

Remarks. From examination of the above I at once

concluded that it was a simple fibrous tumour, one, however, arrested, as it were, in a low stage of development, consisting of nucleated cells undergoing a transformation into filamentous tissues. It was not Cancerous, for it contained no milky juice, and the cells composing it were evidently undergoing a transformation into fibres. The tendency to reproduction after removal is certainly not a common character of fibrous tumours, but still by no means necessarily constituted it a Cancer. It was one of those tumours known to surgeons as "recurrent fibrous tumours." A tumour very similar to the above, both in its structure, and also in its tendency to return after removal, forms the subject of Dr Bennett's 38th Observation on Cancerous & Canceroid Growths. It, as well as the above, consisted of nucleated cells undergoing a transformation into fibrous tissue, but differed from the above, in some parts of the tumour being in a higher stage of development than others. In the case just related the development over the whole mass of the tumour was pretty uniform.

Epithelial Tumor on Labium - Removal - Cure.

History - Mary Craig aet. 58 was admitted into the Royal Infirmary on January 30th 1857 on account of a warty excrescence about the size of a cherry growing from the inner surface of the right labium. She said this had been growing for two years, and for seven months had often been the seat of great pain. On February 7th it was removed with a pair of curved scissors, and on Feb. 14th the patient was dismissed cured, the wound having almost completely healed.

Description of the Tumor. It was about the size of a cherry, of a somewhat rounded form, narrower at its attachment than its middle, & rough & modulated externally. Its external surface was covered with a ^{thick} white fluid, which microscopic examination showed to contain pus corpuscles, granular matter, and nucleated cells like Epithelium. On making a section through the centre of the tumor it was found to consist of two distinct structures, externally a firm substance of a greyish white colour, divided into lobules by deep fissures passing down from its external surface. This contained no blood vessels, and was found on microscopic examination to be made up

+¹. Churchill on diseases of Females p. 29.

of rounded & elongated cells (with an average diam of $3\frac{5}{100}$ in.) closely aggregated together, & presenting all the characters of Epithelium cells - The other portion of the tumour, wh. Fig: 63. was next the point of attachment, did not extend more than 2 lines into the substance of the mass. It was red & vascular, & composed of areolar tissue with numerous bloodvessels.

Remarks. This tumour, which examination showed to consist of accumulated Epithelium with hypertrophy and increased vascularity of the submucous tissue, forms a fair example of those warty growths which are so common on the genital organs of both sexes. They no doubt in many cases owe their origin to previous venereal disease, and they have even been known to be developed on the cicatrices of chancres.⁴¹ Their presence, however, does not necessarily indicate the previous existence of venereal disease, as we find them in patients who never laboured under any such complaint. Though not of a Cancerous nature, these tumours are often reproduced after removal -

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Observation XXXIX.

Enchondroma of fore-finger - Amputation of Finger. Cure.

History. Janet M. — from Forfarshire was admitted into the Infirmary under the care of Mr. Syme on Feb^y. 27/57. on account of a tumour projecting from the palmar aspect of the proximal phalanx of the right forefinger. It adhered firmly to the bone, was about the size of a large chestnut, and of elastic consistence. It had only been growing for 9 months. For about three weeks before admission, she had been troubled with considerable pain in the tumour. — Mr. Syme performed amputation at the metacarpophalangeal joint. A fortnight after, the wound had cicatrized, and the patient was dismissed from the hospital.

Description of Tumour. It was about the size and shape of a large chestnut, its flat surface being attached to the palmar aspect of the proximal phalanx. The dorsal surface of the phalanx presented quite a natural appearance. Externally, the tumour presented a rather uneven glistening aspect, and on pressure it was found to possess considerable elasticity. On making a longitudinal section right through the centre of the tumour and the phalanx, the tumour was seen to be attached to the surface of the bone, the laminae of which were

*' See Obsw. ~~XVIII~~ & ~~XIX~~.

not expanded over it as in the two preceding cases.^{11.}
 The proper substance²² of the tumour was translucent,
 of a pinkish grey colour, and of a gelatinous consistence.
 Intersecting its substance were bands of fibrous tis-
 sue arranged in a particular manner, so as to en-
 close in small loculi the gelatinous substance. In some
 of these bony matter was deposited, especially near
 the attachment of the tumour at the proximal ex-
 tremity of the phalanx - At this part indeed the tumour
 extended into the heart of the bone, and expand-
 ed its proper substance. Indeed the tumour seemed
 to take its origin from this end of the bone, merely
 to overlap the rest of it. When a small portion of
 the gelatinous substance of the tumour was com-
 pressed between two glass plates and examined
 microscopically, it was found to consist almost
 entirely of nucleated cells. These were of various Fig: 64.
 sizes, their average diam^r being about $\frac{7}{50}$ inch.
 As to form they were round, oval, elongated or
 more or less irregular. They underwent but little
 change from the action of Acetic acid - Each con-
 tained a single round or oval nucleus ($\frac{1}{2000}$ inch)
 with a greater or less quantity of granules between
 the nucleus and cell wall. Round the edges of

the compressed particles these cells were seen floating about loose, but in the centre they seemed imbedded in a transparent structureless fluid. On examining the medullary substance from the proximal end of the phalanx, close to the edge of the tumour, it was seen to consist of few immense amount of oil globules, with several nucleated cells presenting all the appearances & characters of those just described.

Fig. 65.

Remarks. This tumour was obviously an Eucheridroma - being of the same nature as the two already described. It differed from both these tumours, however, in involving to a less degree the proper substance of the bone. In fact it seemed rather to belong to that class of Eucheridromatous tumours, which originate beneath the periosteum, and external to the bone, as would appear from some of the laminae of the latter being expanded over its surface. The comparative rapidity of its growth was in accordance with this view, for it was considerably greater than that of Eucheridromata originating in the centre of bones generally is - The existence of nucleated cells in the medullary substance the same as those composing the tumour, seemed to indicate

that an excudation was taking place there, and becoming organized into a tissue the same as that of the tumour - in other words, that the tumour was extending itself in that direction. -

Observation XL

Encysted Tumour of the Mamma. Excision - Cure -

The following ^(description refers to) tumour was removed by Mr. Sympson in Mr. Hulse's House on February, 27th 1857. It was growing in the right mamma of a middle aged female, and was situated towards its upper and inner part,

buried in the substance of the gland, and apparently about the size of a walnut. It had been growing for rather more than 3 months, & did not ^{except when pressed upon} cause her any pain.

Examination of the Tumour after removal. It was of a rounded form, & about the size of a walnut, tense but fluctuating. An incision was made into it, & its contents evacuated. These consisted of about ⁴ fluid drachms of a turbid whitish fluid, not unlike whey. Microscopic Examination showed this to contain numerous cells with a quantity of very fine albuminous granules. These cells were of very various forms but mostly round or oval. They varied greatly in size. Some had a diam^t of $\frac{3}{50}$ inch while others did

not exceed $\frac{1}{3000}$ or less. They were all exceedingly fine and delicate, and almost invisible except with a very limited supply of light to the field of the microscope. They were loaded with fine albuminous granules which completely occluded all appearance of a nucleus. The addition of a drop of Acetic acid, however, revealed the presence of a round transparent nucleus in each. The walls of the cyst were strong & thick ($\frac{1}{10}$ inch), and perfectly entire throughout. Externally they were surrounded by the substance of the mammary gland. The internal free surface presented a white colour with a smooth serous like aspect. On this surface there were two patches of a bright red colour, of a rounded form, and with a diam^r of 2 or 3 lines. Microscopic examination showed this redness to depend on a close network of capillary bloodvessels. A section was made with a Valentini's knife through the cyst transversely and examined, under the microscope. Externally it consisted of a dense network of fibrous tissue - both yellow and white fibres. Towards the inner surface this network became gradually more and more delicate, till there were seen only a few delicate fibres ramifying through

a greyish amorphous substance (Fig. 67.) Projecting
 inwards from the inner surface seemed to be a
 number of tapering processes like papillae -
 Remarks. The above was an example of a true
 encysted tumour full of an albuminous fluid - As
 to its mode of origin, it could not have originated
 from the dilatation of one of the mammary ducts
 by a retention of the natural secretion, as some
 no doubt, would maintain, for in the first
 place, no trace whatever of any communication
 or connection between the cyst and any of the
 mammary ducts could be made out, though
 careful search was made, and in the second
 place, the contents of the cyst did not bear the
 slightest resemblance to milk or to any substance
 into which it might be supposed milk could be
 transformed. Not a single oil or milk globule could
 be detected in it by microscopic examination.
 The vascular spots on the inner surface of the
 cyst were interesting when we recollect how
 frequently cystic tumours come to contain pure
 blood at some stage of their growth (see Page 63.)
 In the present instance no blood had as yet
 been extravasated -

Observation XI.

Cyst of the Lower Lip - Excision - Cure.

On February 24th 1857. Mr. Spine removed a cyst about the size of a large pea from the lower lip of a boy 10 years of age. It was situated beneath the mucous membrane at the right extremity of the lip immediately within its margin. It had been growing for some months, and was the source of considerable inconvenience and sometimes of pain. No cause could be assigned for its origin. Mr. S. clipped off the mucous membrane covering the cyst with a pair of curved scissors - the contents of the cyst were then evacuated, and the remaining portion of the cyst itself pulled out with a pair of dissecting forceps.

Examination of Cyst and Contents. The contents of the cyst consisted of a glairy fluid, transparent like water, but of greater consistence. On examining a drop of it under the microscope (280 linear) it was found to contain nucleated cells in various stages of development, and which were obtained in much greater abundance ^{in the matter obtained} by scraping the inner surface of the cyst. They were mostly of a rounded form with a diam^r of about $\frac{8}{100}$ inch. Each contained a single round nucleus ($\frac{1}{3200}$ in) with more or less

granular matter between it and the cell wall.

Acetic acid rendered the cell walls somewhat more transparent while the nuclei became more distinct. Many of the cells were seen adhering in masses by their edges. The cyst in which the above fluid was contained was thin and semi-transparent. Its inner surface was lined with a layer of the cells just described. On tearing it with needles a small portion of the cyst, it presented a fibrous structure with elongated nuclei (5000 in ch.) imbedded among the filaments. A transverse section with a double bladed knife through that part of the cyst, which along with the mucous membrane had been removed by the scissors, presented the same fibrous structure externally, with cells arranged along its inner edge. There was not, however, the ^{same} gradual transition from cells to fibres as in the case detailed in Obsv. -

Remarks. The above is a good example of a cystic structure, and very similar to those of tenet with in the eyelid. From its contents, it was obviously still in an early stage of development. There were no oil globules in these, nor any of the other elements indicating albuminous matter undergoing change. (Cholesterine etc.)

Observation XLII.

Cancerous Swollen of Mamma. Cancerous deposits in
Lymphatic Glands of Axilla. Excision.

History. - On Feb. 22nd 1851 Ann W. - aet: 51 a shepherd's wife was admitted into the Royal Infirmary under the care of Dr. Dunsinure, on account of a hard tumour of the right mamma, which she first observed 5 months before admission, but which, being then of considerable size, must have been growing for some time before. It was often the seat of sharp shooting pains. The nipple was somewhat retracted, and the tumour seemed to be slightly adherent to the pectoral muscle. It extended upwards & outwards towards the axilla, and in the axilla itself an obscure swelling was felt, but owing to the quantity of fat the nature & extent of this could not be very well ascertained. On March 1st Dr. Dunsinure removed the right mamma with a large quantity of the surrounding fat in the usual manner. During the dissection the glands of the axilla were ascertained to be enlarged, and a bunch of them about one half the size of one's fist was also dissected out. Several arteries were tied, and the edges of the wound were brought together.

by sutures. For 10 days after the operation there was a copious purulent discharge from the wound, & considerable erythema of the surrounding skin. The patient seemed then in a very precarious state, labouring under symptoms of pyæmia. She is ^(March 31st) now, however, greatly better, and the wound is rapidly healing.

Description of the part removed. The whole mass removed weighed upwards of 22 oz avoird: Along with the tumour was an immense quantity of fat, and an elliptical portion of the integuments measuring 5 inches by 3, in the centre of which was the nipple somewhat retracted. The integuments surrounding the nipple were slightly adherent to the surface of the tumour. The latter was imbedded in the mass of fat, but there was no fat on the lower surface of the tumour, it having been separated from the pectoral muscle by only a very small quantity of areolar tissue. The tumour itself was of a rather ^{irregular} circular form with an average diameter of about 5 inches, and thickness 2 inches to 1. None of the natural mammary tissue could be detected. On cutting into the tumour, its consistence was found to be very dense, approaching to that of cartilage. The surface of the section was smooth and of a yellowish white colour. On squeezing it or scraping the surface of a section, a very small amount

amount of milky juice was obtained over the great
 or part of the tumour; but from several isolated
 points a distinct drop of a pinkish grey milky
 juice exuded on pressure. On examining a drop of
 this under the microscope, it was found to con-
 tain crowds of cells presenting the characters of
 those most common in Cancerous tumours. They Fig: 70.
 were found in all stages of development, and
 many were seen containing two, three, or more
 nuclei in their interior. Their form was mostly
 round or oval. Their diam^r varied from $\frac{3}{500}$
 to $\frac{1}{2000}$ inch or less. The cell walls were very
 delicate and transparent, and rendered still
 more so by the action of acetic acid. A few cells
 were seen loaded with granules which com-
 pletely occluded all appearance of a nucleus.
 Mixed up with the above cells was a small
 quantity of albuminous granules, and a few
 oil globules. On making a thin section of the
 tumour with a Valentini's knife, and examining
 it under the microscope after adding to it a
 drop of Acetic acid, it exhibited a dense network
 of fibres arranged so as to leave empty spaces
 in which were imbedded masses of the cells already Fig: 72.

described - The enlarged lymphatic glands removed from the axilla formed a mass about $\frac{1}{2}$ the size of an ordinary fist - They varied greatly in size, one or two being as large as potatoe plums - On cutting into them their substance was found to present a white colour, and yielded on pressure a quantity of a pulpy milky white fluid which microscopic examination showed to contain exactly the same elements as the juice of the tumour, with this exception that there were more oil globules and granular matter in it (see Fig: 71) . The amount of this fluid varied in the different glands. Some of them seemed to consist entirely of a thick white pulpy substance. When this white pulp was washed away from a small portion of one of the glands, what remained was found to consist of a stroma of white fibrous tissue with numerous empty spaces in which the fluid had been contained. Fig: 72.

Remarks. No doubt could be entertained as to the cancerous nature of the above tumour. Could it have been known before the operation to what an extent the glands had become involved, this would certainly have counterindicated any operative

* She first observed it a month before, but said it was as large then as at the time of the operation.

interference - The greater quantity of the milky juice in the glands than in the tumour of the mamma was in conformity with the greater rapidity in which in all probability the former deposit had taken place, for, as a general rule, the more rapidly a cancer is formed, the more nearly does it approach the characters of soft Cancer. -

Observation XLIII.

Cancerous Tumour of the Mamma - Excision - Cure.

^{History.}
On the 16th of February 1857 Mr. Syms excised the right mamma of a middle-aged married female on account of a tumour situated at the upper and inner part of the gland. Before removal it appeared to be about the size of one-half a small orange, and felt of very hard consistence. The nipple was somewhat retracted but the skin moved freely over the surface of the tumour, and the latter upon the muscle. There was no swelling to be felt in the axilla, but beneath the integuments over the clavicle was a hard lump about the size of a cherry. The tumour in the mamma first appeared about one year before the operation, that over the clavicle had been growing for some months. She occasionally suffered considerable pain in tumours of Mammae.

The patient was brought under the influence of Chloroform and the mamma removed in the usual manner. Several arteries were tied, and the edges of the wound brought together by sutures. The patient had no bad symptoms after the operation, and the wound healed in a great measure by the first intention.

Examination of the part removed. The whole mass weighed rather more than 4 oz. avoird. It consisted of an elliptical portion of skin with the nipple in the centre, of the mammary gland, the tumour, and a small amount of fat. The tumour was imbedded in the substance of the gland at its upper and inner part; the rest of the glandular tissue was quite healthy. The tumour was of a circular flattened form and occupied a space about equal to that of a crown piece. Its thickness was about 1 inch. Its outline was pretty well defined, but its surface was quite inseparable from the tissue of the mamma. Its consistence was very hard, so that it grated under the edge of the knife when a section was made through it. The colour of a fresh section was a dirty, greyish white, and when a slice of the tumour was held up to the light, it was seen to possess a considerable degree

of translucency. On compressing the substance of the tumour, a quantity of a greyish juice of the consistence of milk exuded in small drops from the surface of the section. This on microscopic examination was found to contain nucleated cells and a small quantity of oil globules and albuminous granules. The cells varied in size from $\frac{1}{600}$ inch downwards. They were seen in all stages of development. Their form was round, oval, or more or less irregular. Each cell contained a rounded, rather opaque nucleus $\frac{1}{2000}$ inch in diam., with more or less granular matter between the nucleus & cell wall. In the interior of the nuclei one or more nucleoli were generally present. Many of the cells contained two nuclei, & others three (Fig. 73.) A drop of acetic acid rendered the cell walls very transparent but did not influence the appearance of the nuclei to any great degree. A few cells were seen quite loaded with granules, which completely obscured all appearance of the nucleus. A thin section ^{of the tumour} was made with a double-bladed knife, and after the addition to it of a drop of diluted acetic acid was examined under the microscope ($\times 280$ lenses). It was seen to consist of a fibrous net-

Fig: 73.

work, in the meshes of which were enclosed the cells above described. The acetic acid revealed the presence of elongated nuclei, imbedded among the fibres, and imparting to the whole structure a very beautiful appearance. Fig: 74.

Remarks. This tumour was a good example of Scirrhous Cancer of the mammae, and similar to several tumours which have already been described. It is difficult to say, whether the small tumour over the clavicle was of the same nature or not.

Observation XI. IV.

Horny Excrescence of Face - Removal - Cure.

^{History.}
 On Feb. 4th 1857. Mr. Spence of this city removed from the face of a man the horny excrescence which forms the subject of the present observation. It was situated on the right cheek between the nose and lower eyelid, and about 1 inch distant from either. It had only been growing for ev 4 months, and was the cause of considerable deformity. It was excised along with a small quantity of the surrounding fat. The operation caused considerable hæmorrhage, no fewer than four arteries requiring to be tied.



To face page 210.

No bad symptoms followed the operation.

Description of the part removed. — This was 1 inch long and of conical form, broad at the base and gradually tapering to a narrow point at its distal extremity. — The base of the mass consisted of fat. Externally the excrescence was covered with skin, which towards the apex gradually became lost in a dark brown mass of hard consistence. A section was made with a scalpel right through the centre of the mass from base to apex. The section exhibited an appearance represented in the annexed drawing. — At its base it consisted of fat, imbedded in the substance of which, like a hair in its follicle, was the proper substance of the horn. The latter was $\frac{4}{5}$ of an inch long, and of conical form, gradually tapering from its rounded base which had a diameter of $\frac{1}{2}$ inch to a pointed extremity. At the base its substance was of a greyish colour, and much softer than nearer the apex, towards which it gradually assumed a dark brown colour, and seemed to possess a sort of fibrous structure similar to that of nail. — Even at the apex, however, it was hardly so hard as nail. A portion of the soft part of the horn at its base was picked out on the point of a knife

^1. One flattened cell was seen with numerous concentric
striae surrounding its nucleus. (See Fig:)

compressed between two glass plates, and examined under a microscope (250 linear). It was then seen to consist of nucleated cells and granules, the former being seen in all stages of development and presenting the ordinary characters of epithelium cells. Most of them were rounded flattened scales, while others which were smaller were more or less globular. Fig: 75.

Similar cells were seen in a particle taken from the middle part of the growth, but here many of them presented very irregular forms, and most of them exhibited a great tendency to elongation. Many of them were also seen breaking up into numerous filamentous processes. They were arranged in a very irregular manner, so as to resemble somewhat an interlacement of fibrous tissues. A thin shaving from the pointed extremity of the excrescence, exhibited precisely the same structure as that of nail - an appearance of striae running parallel to one another, and which depended on the aggregation together of numerous elongated filamentous processes. Fig: 76.

Acetic acid produced no change in the above, except to render the striated structure more distinct. Fig: 77.

Remarks. The above is an example of a growth by no means common in the human body.

viz: horn. Horns on the surface of the body are developed in a sort of cyst, which after a time bursts and allows the contained horn to grow out, and often to attain a considerable size. Its growth may be rapid as in the above case. A horn may be compared to hair, having like it a bulbous root which is implanted in a follicle from which it derives its nourishment. The vascular supply to the follicle is often, as in the above instance, considerable. In their structure horns also bear a close resemblance to hair, consisting at their root of well formed nucleated cells, which near the distal extremity become elongated and split up into filamentous processes, which, becoming arranged side by side, impart a striated appearance to the structure.

Observation XLV.

Cancerous Tumor of the Mamma - Excision.

History. - On the 28th of February 1857 Mr. Syne removed the right mamma of a lady apparently 70 years of age but ^{who} stated that she was only 60. The operation was performed on account of a hard tumour in the gland, which had been growing for some years, but which latterly had been giving her so much pain as to

make her anxious for its removal. The tumour was ~~to be~~ confined principally to the upper and inner part of the gland, and seemed to be about the size of one half an orange. The nipple was considerably retracted, but the skin moved freely over the surface of the tumour. There was no enlargement of the lymphatic glands in the axilla, and the patient's general health was good. The ^{op}eration was conducted in the usual manner - Several large vessels were tied, and the edges of the wound were kept in contact by sutures. The patient recovered without any untoward symptoms; and in the course of three or four weeks the wound had quite cicatrized.

Description of the part removed. - The entire mass weighed altogether 10 oz; avoird: and consisted of an elliptical portion of skin six by 2, with the nipple in its centre, a considerable quantity of fat, the mammary gland, and the tumour in the substance of the latter towards its upper and inner part. The tumour itself was about the size of half an orange, and of a semi-globular form with its convexity in front next the skin. It was separated from the skin, and had been from the muscle before its removal by a considerable layer

of fat. Its structure was very dense, grating under the knife when cut. Its substance was of a greyish white colour, and yielded on pressure a quantity of a greyish milky juice. At several isolated points the substance of the tumour was softened into a greyish pulp. When a drop of the juice was examined under the microscope (280 lines) it was seen to consist principally of numerous naked nuclei, of a round or oval form and with a diameter of about $\frac{1}{2000}$ inch. They were but little affected by the action of Acetic acid. Each contained in its interior one or more minute nucleoli. Along with the above, but in far less quantity, were nucleated cells, the nuclei of which were exactly similar to those existing in a naked condition. These cells were round or oval, and the largest of them had a diameter of $\frac{1}{450}$ inch. The cell walls were very transparent & delicate, and rendered still more so by the action of Acetic Acid. Some of the cells contained one, others two, three, or more nuclei. Along with the nucleated cells and naked nuclei was a considerable quantity of oil globules and albuminous granules, & a few compound granular cells. A thin section of the tumour, made with a Valentini's knife, exhibited

Fig: 78.

under the microscope a delicate fibrous stroma infiltrated through the meshes of which were the elements of the milky juice just described. Elongated nuclei might be seen lying between the filaments of the fibrous element.

Fig: 79.

Remarks. This tumour was evidently of the nature of Scirrhous Cancer, and from the quantity of oil globules and granular matter, which microscopic examination shewed it to contain, as also from the few softened points in its substance, it seemed to be commencing to undergo a process of softening. The great number of naked nuclei in proportion to that of the nucleated cells affords some analogy to the case of Cancer of the Testicle detailed in Observation 4.

Observation XLVI.

Fibro-nucleated tumour of upper Lip - Excision - Cure.
 On March 7th 1857 Mr. Syre in the Royal Infirmary removed a tumour from the upper lip of a middle aged labouring man. This tumour was about the size of a large bean, and situated immediately under the mucous membrane towards the right end of the lip. It was of firm, but not hard consistence;

and was quite movable. It had been growing for nine years. No cause could be assigned for its origin. It had never given him any pain, and he was anxious to get rid of it, more on account of the inconvenience of its bulk than from any other cause. A simple transverse incision, 1 inch long, was made through the mucous membrane over the tumour; the latter then seized by a hook and dissected out. Its vessels required to be tied, & in the course of 10 days the wound had healed.

Description of the Tumour. Its size ^{of shape} was about that of an ordinary French bean. Its consistence was firm, but not hard. On making a section through its centre the surface of the section was perfectly smooth and uniform of a yellowish white colour. When scraped a considerable quantity of a clear watery fluid was collected on the edge of the knife. A drop of this when examined under a microscope (320 lines) was found to contain numerous bodies like nuclei, exactly similar to those obtained from the juice of the tumour described in Obsv. 28. - They were transparent, of a faint greyish colour, of a round or oval form, and with an average diameter of $\frac{1}{2000}$ inch. Acetic acid produced little or no change on them. Slipped up with them

Fig. 83.

was a small quantity of albuminous granular matter. When a portion of the tumour was teased out with needles, and examined microscopically, the above nuclei were seen infiltrated through a fine fibrous tissue. No regular arrangement of the nuclei with regard to the fibres could be made out.

Fig. 84.

Remarks. This Tumour exactly resembled both in general appearance and also in structure the tumour removed from the soft palate already described (Obs 28) and also one removed from the mammary region. These all contained a copious juice, differing however, from that of Cancer in being quite transparent and watery in place of resembling milk, and containing no nucleated cells. None of the three exhibited any malignant tendency.

Observation XLVII

Melanotic Cancerous Tumour of Penis -- Melanosis of Lung &c. Death. History. James Lethin aet: 54 Butler was admitted into the Royal Infirmary under Mr. Sykes' Care on February 4th 1857 on account of a tumour on his penis. This was about the size of a large chestnut, of a flattened oval form and of a brownish black colour. It was attached to the outer surface of the prepuce on the lower aspect

† about 1 inch more than on the right side, where the respiration was puerile. On the left side there was no vocal resonance. The patient's hair was of a dark brown color.

of the glands, and also to the edge of the prepuce so as to render it very difficult to retract this over the glands. When the prepuce was reflected, the glands was found to be not above one-half its natural size, and on its surface there were several rounded elevations of a bluish black colour, varying in size from that of a pin's head to that of one half a sweet pea. The external surface of the tumour was very slightly nodulated, and covered with a puriform discharge of a greyish yellow colour, and very foetid odour. When it was pricked with a pin, it bled with considerable profuseness. The patient stated that it was often the seat of considerable pain. It had been growing for two years, and commenced as a small dark wart on the outer surface of the prepuce fully 1 inch from its edge. It remained small for about 6 months, after which it began to grow more rapidly. Three months before admission he first observed a swelling in both his groins, and in each of these there could be felt and seen on admission a hard lump almost as large as a hen's egg. He had a slight cough & occasionally considerable dyspnoea. There was dullness & absence of respiration all over the left side of the chest, which measured in circumference

Microscopic Examination. The puriform fluid scraped from the surface of the tumour was found to contain pus corpuscles with a large quantity of granular matter with here and there masses of pigment granules of a dark brown or black colour. -

Fig: 80.

From the affection of the glands in the groin it was deemed inadvisable to remove the tumour, and in order to examine its structure, I shaved off with a sharp bistoury a very thin slice from one part of ^{its} surface of the tumour. A few drops of blood escaped, but no bad consequences resulted. The cut surface of the tumour was of a soft gelatinous consistence, & of a perfectly black colour. On scraping the cut surface of the shaving removed, a black pulpy substance was collected on the edge of the knife. This was examined under the microscope (280 lines) and was found to consist for ~~the most part~~ of nucleated cells. Many of these Fig: 81. were not unlike cells already described in Cancerous tumours, consisting of a delicate cell wall, in some cases as large as two inches, enclosing one, and sometimes two rounded nuclei, and between the nuclei and cell walls a quantity of fine grey granular matter. These cells were seen in various

stages of development. But the majority of the cells contained in their interior a greater or less quantity of a dark coloured pigment. The quantity of this in some cells was so great, as completely to obscure all appearance of a nucleus. Its colour seemed to vary from a pecan or bistre brown to a pure black. Acetic acid produced no change on it, but strong nitric acid rendered its colour much lighter. The cells containing this pigment, were of the same form and size as those which did not - One was seen to present a sort of branched form (see Fig. 81.) mingled with the above cells was a quantity of grey granular matter and also of brown and black pigment granules. A small particle of the shaving of the tumour was teased out with needles and compressed between two glass plates. When this was examined under the microscope, it presented a fine filamentous tissue with cells &c. similar to those already described, but the exact relation between the cells and fibres could not be ascertained, as owing to the smallness of the portion of the tumour I was enabled to examine a thin section could not be made.

* *Abrew. on Cancerous & Sarcomatoid Growths page 91.*

Remarks. There was no doubt in my mind after the examination of the above tumour that it was an example of Melanotic Cancer — possessing the ordinary structure of Cancer, with the addition of dark pigment; and being so, it is worthy of interest, as there are very few cases on record, in which such tumours, in the human body, have been carefully examined. — Dr. Bennett in his Observations^{21.} mentions only one case of Melanotic Cancer, and remarks that it is the only specimen he ever had an opportunity of examining in the human body. In Dr. B's case the tumour was about the size of an orange, & was growing from the left cheek. It was removed with success — Like the above tumour it was very vascular; and it likewise possessed a very similar microscopic structure. Various opinions have been entertained as to whether or not Melanotic tumours should be regarded as a variety of Cancer. Those which are found in the horse (in which animal they are very common) are generally believed to be now-malignant, and Messrs. Cullen and Carswell have endeavoured to show that the black deposits which occasionally are met with

*¹ *Jacms: Edinb. Med: Chirug: Soc: Vol: I. p. 264 - 1824.*

*² The hair of the above patient was of a dark brown ^{colour} - an interesting circumstance in connection with the fact that in horses black tumours are almost exclusively confined to those of a grey colour.

Since the above was written, the patient has died, and as an opportunity was afforded of carefully examining the body after death, I shall afterwards give a full description of the morbid appearances revealed by this examination -
(See Appendix, Page -)

in the human body, ^{222.} should be regarded in the same light.^{+1.} But yet, whatever be the nature of melanotic tumours in the Horse, which I have never had an opportunity of examining, it seems probable that many of these which occur in the human body, only differ from Cancer in having black pigment deposited in them, sometimes to such an extent as to obliterate the original structure; not to say, however, that black matter may not be found in other tumours &c.^{+2.}

Observation XLVIII.

Osseo-cartilaginous Body in the Knee Joint - Excision. Death.
History. On the 7th of September 1848. Margaret Dow aet: 19 a servant was admitted into the Royal Infirmary under the care of Mr. Syne, labouring under the symptoms of a movable body in her left knee joint, which, she stated, first began trouble her about 7 months before admission. It gave her great distress, especially when she attempted to walk, so that she had been obliged to give up her work. The body was quite movable, but might generally be felt at the inner side of the joint, and was apparently about the size of a large pea. Mr. Syne made various attempts, first to remove the body by subcutaneous incision of the synovial membrane, and, thus failing, he endeavoured to make its position fixed by transfixing

* Fig: 85.

it with a needle, and retaining it so transfixed for three weeks at a time. All these means failing, however, to afford relief, on the 23rd of December, he made a direct incision down upon the body, and removed it - Next morning violent Inflammation set up in the knee accompanied with general febrile symptoms. These resisted all the means employed to check them - The joint continued to swell, the whole limb became oedematous, the inflammatory fever gradually passed into hectic, and after a lingering illness the patient expired on Feb. 26th 1849.

Mr. Dyne presented me with the body ^{on the day} which he removed it, and the following description, (with the drawings), formed a portion of a communication read by me to the Royal Medical Society. March 30th 1849.

"The body when removed was about $\frac{2}{3}$ inch in length. $\frac{1}{3}$ in breadth at its broadest end. It was prismatic, having three sides gradually tapering to a point at one extremity, and truncated at the opposite, as may be seen by referring to the figures" $\times 1$.

"Its external surface was smooth and glistening, being covered by a membrane, which probably had at one time been continuous with the synovial membrane of the joint. Underneath this there was no

"fibrous capsules, which these bodies are generally described as possessing; but from one of the sides hung a few fibrous shreds, by which formerly, it had probably been connected to one of the various surfaces entering into the formation of the joint - A transverse section of the body showed that it consisted of two distinct structures - one Cartilage - the other bone. Fig. 86.

The Cartilage did not completely envelope the bone, but was only laid on, as it were, on one side (as is represented in fig 86) It was separated from the bony matter by a well defined line. On examining it with the microscope it was found to be composed of a transparent, slightly granular matrix, in which were imbedded cartilage cells, more resembling the elongated cells met with in the costal cartilages, than those of ordinary articular cartilage." Fig. 87.

"But the most interesting structure was that of the bony matter, which possessed Haversian Canals, concentric lamellae, lacunae, & Canaliculi, in all respects resembling those met with in true bone, except that the Canaliculi were hardly so distinct. The presence of Haversian Canals necessarily implied the existence of bloodvessels. Hence the osseous matter was not deposited in an amorphous manner, as is generally believed to Fig. 88.

be the case in the loose bodies in joints, but was an organized formation analogous to ordinary bone.

Remarks. Loose bodies have been found within the capsules of all the large joints, with the exception of that of the hip. They have also been found within the capsules of the articulations of the lower jaw. But by far their most common site is that of the one we have just been considering, viz: within the capsule of the knee joint. The structure of these bodies varies - Sometimes they consist entirely of a substance like cartilage - at other times there is a bony nucleus in the centre of the cartilaginous mass, while at other times, as ⁱⁿ the above case, bony matter constitutes the greater part of their bulk. The fact of the bony matter in the present instance presenting the structure of true bone is not without interest, as it has been generally believed that it is deposited in an amorphous manner, or in other words, that it is an unorganized formation deposited from a mother liquid, whereas, in the present instance the bony matter was ^{organized} an analogous formation deposited from a cytoblastema. The structure of the body may serve in some measure to explain its mode of origin & formation. Various opinions have been entertained as to the manner in which this takes place.

*1. Dict: des. Sc. Med: Vol IV. p. 127.

Some, as Alano, have maintained that they were pieces of cartilage broken off from the articulating surfaces of the joint - Bichat thought they were portions of the synovial membrane transformed into cartilage - Jander regarded them as precipitates from the synovia: Hunter supposed that they were extravasations of blood, which had become organized into a structure resembling that of the part to which they were connected - Loennec believed that these bodies are formed on the outer surface of the synovial membrane, and gradually force their way into the cavity of the joint, the synovial membrane covering them yielding and forming a pedicle by which they are attached. The theory of Loennec, which has been least mentioned, is the one which in my opinion must nearly approach the truth, for it explains in the most satisfactory manner the structure of the body we have just been considering. This, I think, is so far proved, by the following considerations

1. This body, like all others found in the joints, externally presented a smooth serous like surface, exactly like that of the synovial membrane.
2. Bodies similar to the above are often found, not loose

* This interesting observation was contained in the Thesis of D'Vean de
Blye, last year - but the priority seems due to Joe Marchison - JAB.

in the joints, but attached by a pedicle to some part or other of the synovial membrane, which seems to be reflected over them.

3. In the present instance, though the body was loose, the remains of the pedicle by which it had been attached were still to be seen.

4. The true bone in this case could only have been developed in one of two ways - It may have originated from a proper ossifying point ("punctum ossificationis"), as when temporary cartilages converted into bone. ... But this not being at all probable, it appears to me that the only other feasible explanation of its presence is that it originated as a small growth or exostosis, so to speak, from one of the articulating extremities entering into the formation of the joint, which, during its growth, pushed before it the cartilage and synovial membrane, till at length it was only attached by a membranous pedicle, and ultimately broke loose into the joint. The peculiar relative position of the cartilage with regard to the bone, seems to favour this view. *

Recurrent Fibrous Tumour of Thigh. Excision - Cure.

History. Helen W. — act: 37 servant was admitted into the Royal Infirmary under the care of Mr. Squire on Feb. 25th 1857. on account of a tumour of her left thigh. This was situated a little above its middle on its anterior & inner aspect, immediately over the inner edge of the Sartorius muscle. It was about the size of a small chestnut, flattened & of firm consistence. It was covered only by the skin, which adhered pretty firmly to its middle part. It could be moved freely over the subjacent textures. In the centre of the integuments over the tumour there was a transverse cicatrix 2 inches long resulting from a wound made by Mr. Lizars in removing a tumour from the same locality, 12 months before. This first tumour, the patient stated, had been two or three times the size of the present one. A month or two after its removal she perceived a small hard lump in the cicatrix of the wound, this had been gradually increasing in size. She had no pain in the tumour itself but complained of deep seated pain in the thigh. On March 8th Mr. Squire removed the tumour along

with an elliptical portion of the skin which adhered to it. No vessel required to be tied. The edges of the wound were brought together by sutures, & in about a fortnight had quite cicatrized, without any symptom of a reappearance of the disease.

Examination of Tumor after removal. The mass removed consisted of an elliptical piece of the skin $1\frac{1}{4}$ inch long and $\frac{1}{2}$ inch broad with the tumor adhering to its lower surface. This was about one half the size of a walnut, of a roundish compressed form, & of firm but not hard consistence. When a section was made through its centre its substance was found to bear a very close resemblance to a lump of fat. It was of a yellowish white colour, and when torn with the fingers split up easily in various directions. It contained no juice. Through the substance of the tumor were a few specks about the size of millet seeds of a whiter colour than the rest. A minute particle of the tumor was compressed between two glass plates and examined under the microscope (280 diam.). It was found to consist of very delicate filaments, for the most part running parallel to one another, and not intersecting to any great degree,

See bij's 89290 -

The addition of a drop of acetic acid revealed the presence of numerous elongated nuclei imbedded among the filaments. Along the edges of the compressed particle of the tumour were seen a few nucleated cells, some of them round, but most presenting a more or less elongated form. They varied in size from a diameter of $\frac{1}{600}$ inch downwards. The cell walls were rendered very transparent by the action of acetic acid. Each contained a single round oval nucleus. These nucleated cells were more abundant in some parts of the tumour than in others. They were particularly numerous in the white specks above alluded to. *

Remarks. This tumour afforded a good example of the use of the microscope in detecting the nature of a tumour after its removal from the body. Almost everyone to whom it was shown believed it to be a lump of fat. Dr. Syre declared that it was very similar to fat, and certainly it did bear a very close resemblance to this substance. Microscopic examination, however, proved that its real nature was very different. That it did not contain a single fat cell or oily

+¹ See Page 187.

+² See Page 191.

matter in any shape whatever. On the contrary it consisted of undulated cells apparently becoming converted into filamentous tissue, and bore a very close resemblance in structure to a tumour already described, and which, like the present, possessed the character of a tendency to reproduction after removal⁺¹. There could be no doubt that this tumour was not Cancerous, and for the same reasons which I have already assigned in my remarks on the tumour just alluded to⁺².

Observation I.

Encysted Tumours of scalp. Calcareous matter in Contents. Removal. Gurr.
 History. On March 26th Dr. R. Mackenzie removed 2 wens from the scalp of a female about 34 years of age. They were about the size of small marbles, and situated over the anterior and inner portion of the right parietal bone. The operation was performed in the Royal Infirmary, and conducted in the usual manner; the cysts being first transfixed by a long straight bistoury and then pulled out with a pair of dissecting forceps. The posterior cyst was extracted with great ease, but pretty firm adhesions existed between the anterior one and the sur-

rounding textures. The patient stated that they had been growing for about fifteen years. - She did not know whether any of her relatives had ever been affected with them -

Examination of cysts after removal. Externally, they presented a smooth surface, and firm consistence and were found on microscopic examination to consist of fibrous tissue.

They were both of a rounded form, and about the size of small marbles. - The posterior one was full of a soft lardaceous substance of a yellowish white colour. - When a small portion of this was examined microscopically it was seen to consist of structures similar to what are represented in Fig: 91. : the most abundant were cells and albuminous granules; but there were also, though in very sparing quantity, oil globules and scales of Cholesteroline. The cells were rounded or more or less elongated, but on the whole their outline was very irregular. - They had an average diam^r. of $\frac{1}{800}$ inch. - They were but little affected by the action of Acetic Acid. - In but few of them could a distinct nucleus be made up.

Fig: 91.

The anterior cyst contained a matter similar to that

just described; but in the centre of the soft substance was a mass about the size of a pea of stony hardness. On cutting into this it presented a pure white colour, and an appearance very like that of Chalk. Its consistence was, however, harder than that of ordinary Chalk. It effervesced when a drop of muriatic acid was let upon it. The surrounding soft substance presented the same microscopic structure as the matter contained in the posterior cyst - except that it contained in addition semi-crystalline masses, of a dark brown colour, of very irregular shapes, and almost entirely disappearing under the action of muriatic acid.

Fig: 92.

Remarks. The above tumours closely resembled some which have been already described, both in the general appearance of their contents, and in their microscopic structure. The only peculiarity in the present case was the existence of calcareous matter (probably Carbonate of Lime) in the contents of the anterior. I have never met with this in the contents of any other encysted tumour which I have examined: and, though I believe it is sometimes found, yet it is by no means common.

The preceding fifty tumours are by no means all whose structure I have examined, yet they are those which I have examined most carefully. Of every case I have endeavoured to give such an account, as will convey the clearest idea of the reality, to one's mind, independently as much as possible of any preconceived theories on my part. Should I, in the course of the next three months, meet with any more tumours, of which I shall consider it worth while to record descriptions, I shall not fail to do so, and shall add them to the above in the form of an appendix. My great aim throughout has been, with what success others are best able to judge, to advance in some degree our knowledge of the Pathology of Tumours by the preceding "Contributions"

Appendix.-

Description of appearances presented on post mortem Examination of body of James Loshian - - (See Page 217.).

(condensed from report in Pathologists Case book. XIII 365).

External Appearances. A tall robust man - Chest broad & expanded - left side slightly fuller than the right to the eye - Body rather pale, but not at all emaciated. Muscular system well developed - Varix of both legs - There are globular enlargements in the situation of the inguinal glands, both above & below Poupart's ligament on either side. At the extremity of the penis there is a brownish black tumour, the size of a large walnut, irregular & ulcerated on the surface & yielding on pressure an inky juice - Between the Corp. Caverosa & the Corp. Spongiosum on either side can be traced small globular tumours beneath the integument - apparently not larger than peas - movable - firm, & elastic -

Thorax. On opening the thorax a large quantity of fluid highly tinged with blood and brownish colouring matter escaped from the left pleura, which was distended to the middle line of the body in front. The apex of the heart was very slight -

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ly displaced to the right - The right pleura contained only a few ounces of fluid which was turbid & tinged with blood - On removing the fluid from the left pleura, which amounted to many quarts, the membrane was observed to be covered with very dark coloured masses of deposit, of very various sizes, which were scattered over every portion of the costal and pulmonary pleura, being in many cases confluent & aggregated into flat masses of indefinite form, but at others accurately rounded, & varying in size from the smallest appreciable point, to a diameter of $\frac{3}{8}$ inch - Most of these masses were covered over with the epithelial lining coat of the pleura, but at the posterior part of the pleura where the confluent masses were most abundant - this membranous lining was at points wanting, & the masses were pulpy and irregular on the surface, & yielded on pressure a large quantity of dark juice very like liquid sepia - A similar fluid was obtained from the entire tubercles when they were cut into - The largest tubercles projected about $\frac{1}{6}$ inch from the surface of the pleura - the smallest were not appreciably elevated, & assumed the appearance of a very fine punctiform shading, like that in -

chalk drawing. - The larger tubercles were almost perfectly black, or of a purplish black hue: the finer shading presented a well marked brown black tint, tinged more or less with purple. - The left lung was completely compressed & anfracted by the pressure of the fluid. - The back part of the costal pleura where it was reflected from the root of the lung into the hollow of the ribs was covered with a layer of recent coagulated blood at some parts $\frac{1}{2}$ inch ^{with} thickness.

The right pleura, containing a very little fluid similar to that in the left, was also affected with similar melanotic tubercles, but in very much smaller quantity.

Embedded in the pulmonary tissue of the Right lung were a few similar circumscribed dark deposits. Around them the lung was quite normal. Vespitant. - The mucous membrane of the bronchi was rose-colored.

The bronchial glands were every where dark colored, but did not present much general enlargement. Larynx & trachea normal. - Many of the glands of the posterior mediastinum were enlarged, & infiltrated with the soap like

pigment above mentioned - There was a cluster of several of these glands, forming a mass about the size of a small orange, situated in front of the oesophagus & between the two bronchi at their bifurcation -

Some of the deep cervical glands also contained the morbid deposit especially a chain behind the sheath of the vessels - : they were not, however much enlarged.

Between the mucous & muscular coat of the oesophagus were one or two rounded tumours about the size of barley corns, containing dark pigment.

The inner coat of the thoracic Aorta was somewhat thickened & irregular on the surface, but contained no deposit -

Abdomen. The whole of the Alimentary canal exhibited slight venous congestion, but was otherwise normal - The mesenteric glands were quite healthy.

The Liver showed beneath the peritoneum about a dozen tubercles similar to the median size of those in the left pleura - On section the organ was generally normal though somewhat congested: it contained several circumscribed masses of melanotic deposit the largest not greater than a very small bean - Hepatic chain of glands seemed normal.

In the Spleen, which was rather more friable than usual, there was a single mass of the morbid deposit, the size of a pea.

The Kidneys contained in various parts of their cortical substance scattered melanotic tubercles. These were not very numerous, accurately globular, & in one instance only exceeded the size of a swan-shot, the exception being a solitary mass at the base of one of the pyramids and extending from it into the cortical substance.

The Pancreas, supra-renal capsules, and splenic absorbent glands were quite normal.

Between the muscular and mucous coats of the bladder were a few melanotic tubercles about the size of barley-corns. — One or two minute melanotic deposits also existed in the submucous tissue of the Urethra.

The lumbar, inguinal, & femoral glands were enlarged & infiltrated with melanotic matter. Along the whole abdominal route the glands were somewhat enlarged, the largest, however, not exceeding a hazel nut in size. On section they showed a pulpy mass, highly charged with papilliferous juice. Some of the glands, which were but

Slightly enlarged, exhibited on section the normal structure of the gland with distinctly circumscribed points of melanotic matter.

In both inguinal regions was a large mass of glands, entirely melanotic on section, resting on the outer side of the sheath of the vessels & passing beneath Poupart's ligament to the saphenic opening where they obviously compressed the saphenic vein, which was coded & rigid to beneath the knee. It contained coagulated blood, with several layers of fibrin firmly adherent to its internal coat.

The lymphatics of the cord contained one or two small melanotic tubercles.

The hypogastric & sacral lymphatics appeared normal, as also all the other external chemis ~~not~~ otherwise mentioned.

Head. The head was examined, but nothing unusual was found, except a few clusters of small cysts (size of a sweet pea) in the Choroid plexus.

The black deposits, in the different parts of the body presented much the same appearance, on microscopic examination, as the tissue of the tumour on

the penis, which has been already figured & described.
In some cases but few distinct cells could be seen,
the pulpy mass being made up almost entirely
of dark brown & black granules.; while in other
instances, when the deposit seemed to be at an
early stage, they were often very numerous.
