

increased. Four areas roughly 15 c.m. in diameter, on the thorax and gluteal region, were clipped free of hair and subjected to tarring in rotation, at the same time as the ear.

15696 She-goat, 6 tooth. Pigmented patches on skin.

Tarred upper surface of right ear since 20.9.27. Since 11.9.27 both the surfaces are painted alternately. So far no change ^{is} visible in the treated skin.

17300. She-goat, 2 tooth. Unpigmented skin. Tarred an area of skin on forehead including the base of left horn and extending down over the seat of a wart which has since disappeared. Application since 20.9.27, and still proceeding after 15 months. No change in skin can be noted.

17301. She-goat, 2 tooth. Clipped and tarred 4 areas on body- alternately and in regular rotation. These areas were situated on the neck, rump and on either thoracic wall. Tarring was discontinued after 4 months as the animal became very poor in condition. / The control rabbits were treated in the same way from the 20.9.27. One died a month after, apparently from tar poisoning. The five remaining animals all started showing small bleeding nodules on the ears [↑] from the third month. After 6 months well developed horny papillematous growths were present on all areas, See figs. 46-50. There was enlargement and thickening of the epidermis, especially of the hair follicles, which usually contained a plug of hornifying substance. Histologically the growths were similar to those described by Itchikawa and Baum, and which they term folliculo-epitheliomas. Tarring of the rabbits was discontinued after the sixth month.

As time went on and no results of the tar application on the goats could be noticed, it was thought that the area of ^{tar} absorption was too small. The ear of the goat or the perineum presents about the same surface as the ear of a

rabbit. For this reason it was decided to increase the surface of absorption by painting additional areas on the body. This was done in the case of 15689, 15690 and 9983, but without any effect on the action of tar on skin. In these cases and also 17301 the tarring was pushed to its toxic limit as evidenced by the rapid emaciation, following on extensive tar application.

After a continuous period of tar application extending over 15 months, during which no alteration in the treated skin can be noted, one is forced to the conclusion that the Angora goat is highly refractory to the carcinogenic action of coal tar.

It would be most interesting to know to what factor this resistance might be ascribed, since this animal is naturally susceptible to spontaneous skin cancer.

FIG. 1.



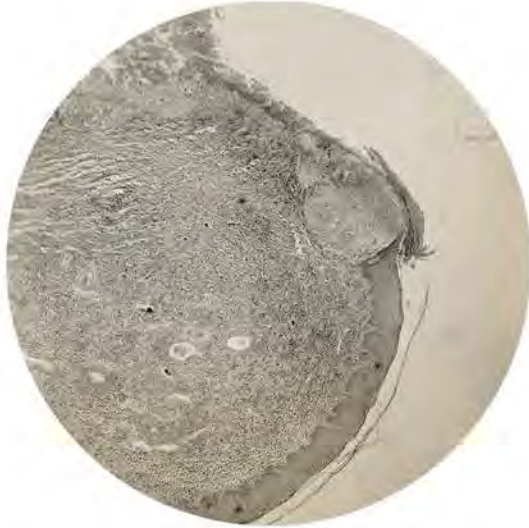
14771. Anal tumour 1.9.26
Basal cell carcinoma.

FIG. 2.



14771. From drawing 2 weeks later.
Regression due to necrosis.

FIG. 3.



14771. Focus of little differentiated
epidermal cells, at junction of anal
mucosa above and ulcerating bed of tumour
below. 24X.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 4



14772. Small tumour to left of anus on 1.9.26, before operation. Basal cell carcinoma.

FIG. 5.

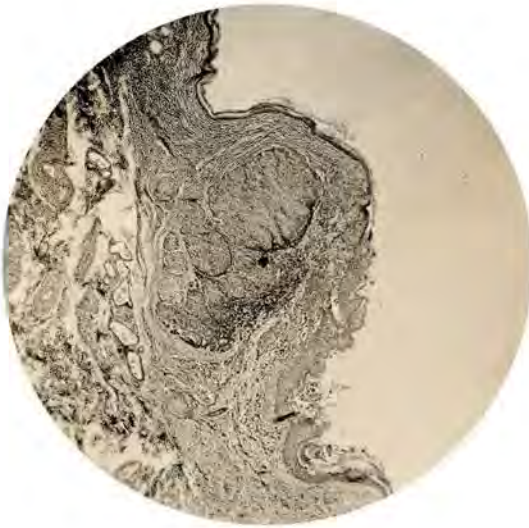


14772. The same fourteen months after operative removal of tumour. Note small excoriations under tail.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas)

FIG. 6.



14772. 25 months after operation.
Focus of epithelial cells presumably
from the basal layer of sebaceous
gland. Note atrophy of epidermis
in parts. 24X.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 7



14773. Pigmented anal tumour.
1.9.26. Basal cell carcinoma.

Fig. 8.



14773. The same from a drawing
two weeks later, to show change in
shape and size.

(Skin Cancer of Angora Goat in S.A.)

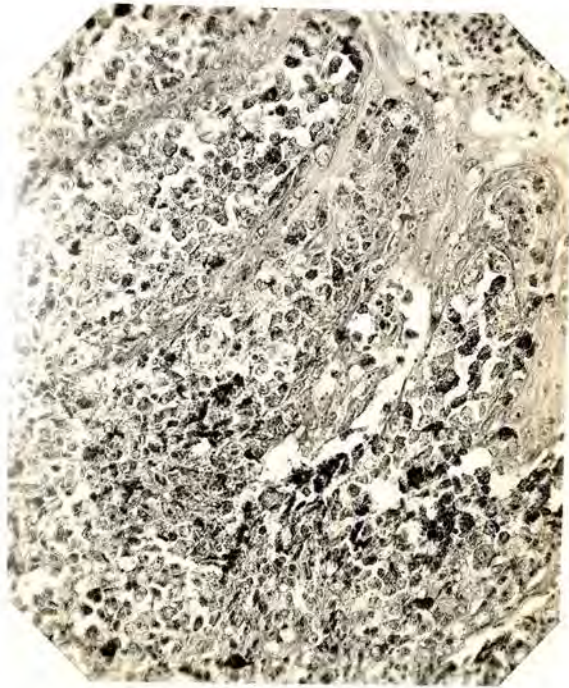
(A.D. Thomas).

FIG. 9.



14773. Transition from the epidermis to tumour. 24X.

FIG. 10.



14773. Epidermis strands. The basal layer is indistinguishable from the tumour tissue. Note the pigmentation. 200X.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas)

FIG. 11.



17293. Anal and vulva tumour.

Fig. 12.



17293. The same. Closer view.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 13.



17293. Tumour after death of animal.
The rectum opens on the floor of
ulcer. Vulva is distorted.
Spinous cell carcinoma.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 14.



17293. Types of giant, degenerated, and keratinising cells found in above tumour ("Cancroid parasites"). 200X.

Fig. 15.



17293. The same as Fig. 14. 200X.

(Skin Cancer of the Angora Goat in S.A.)

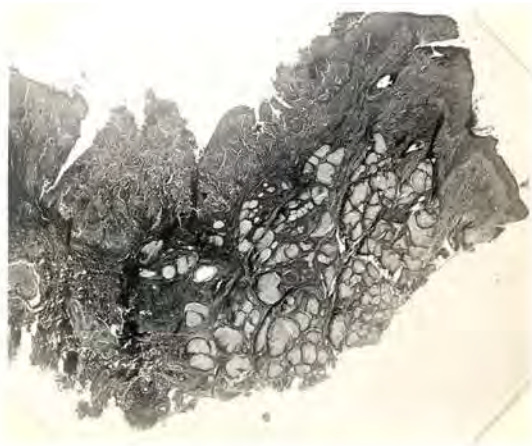
(A.D. Thoma)

FIG. 16.



17294. Small tumours above anus.
2.11.27.

FIG. 17.



17294. Section through tumour
removed surgically. Note epi-
dermis as it merges into the
ulcerating part and the numerous
sebaceous glands. 8X.

FIG. 18.



17296. Pigmented horn tumour with metastases in the lymphatic glands of head and neck. Inset the prescapular gland in section (From drawing).

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 19.



17296. Primary horn tumour.
Vascular zone between necrotic
surface and basal cell carcinoma
proper. 24X.

FIG. 20.



17296. The same. Metastases in
the liver. 24X.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 21.



17297. Cancer of vulva in advanced stage. Two days before death. Heavily infested with fly larvae.

FIG. 22.



17297. Tumour contracted after killing off fly larvae. Secondary metastases in supramammary, sublumbar, bronchial and mediastinal lymphatic glands; kidneys, heart, lungs, pancreas and other organs.
(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 23.



17298. Cancer of the vulva.
Spinous-cell carcinoma
10.11.27.

FIG. 24.



17298. Secondary metastasis in the
supramammary lymphatic gland.
Cancer cells penetrating the
glandular tissue-like roots.
(From a drawing) 170X.

(Skin Cancer of Angora Goat in S.A.)

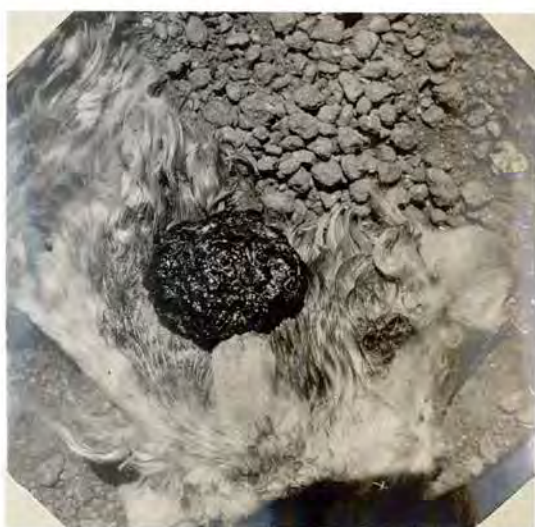
(A.D. Thomas).

FIG. 25.



17299. Basal cell carcinoma of the ear 5.7.27 (From a drawing).

FIGS. 26 & 27.



17299. The same on 28.9.27. Before operation.

FIG. 28.



17299. The same goat after operation and recovery 2.11.27.

FIG. 29.



17299. Section of tumour. Note alteration in basal layer of epidermis and pigmentation. (From drawing). 170X.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 30.



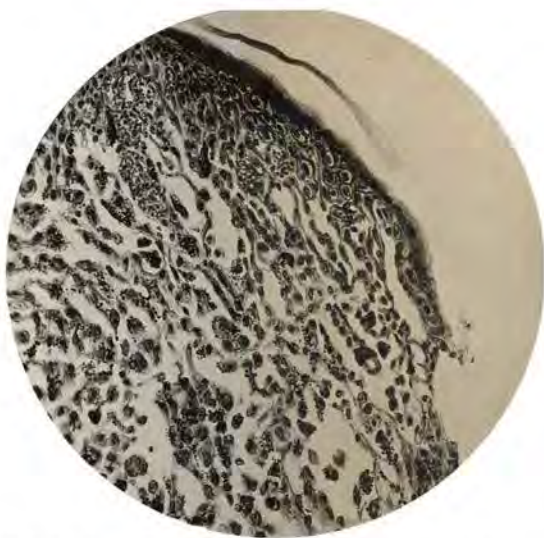
**21967. Cancer of anus extending towards
vulva. Mixed basal and spinous-cell
carcinoma.**

FIG. 31.



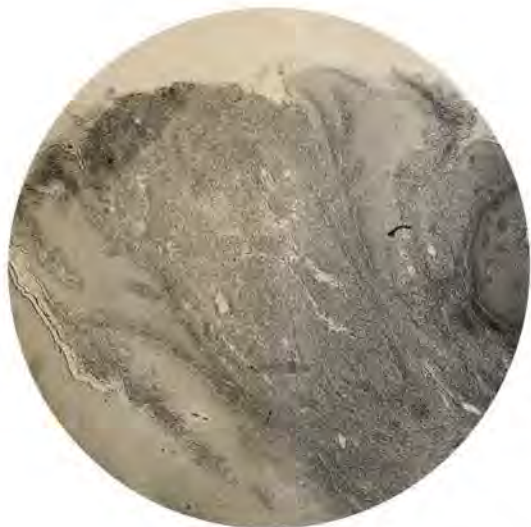
7256C. Epidermis going over to pigmented basal cell carcinoma. Note the patchy distribution of pigment in basal layer. 50X. (From drawing).

FIG. 32



7256C. The same. Transition from epidermis to tumour tissue. Note pigmentation. 190X. (From drawing).

FIG. 33.



7256E. Crypt-like and tubule formation by rows of undifferentiated epidermal cells. 24X.

FIG. 34.



7256A. Typical structure of basal cell tumour in goats. Note uniformity, delicate stroma and patchy pigmentation. 24X.

(Skin Cancer of Angora Goat in S.A.) (A.D. Thomas)

FIG. 35.



Basal cell carcinoma. 7256A. To show the transition between epidermis above, and the loose tumour tissue in centre and below. 200X.

FIG. 36.

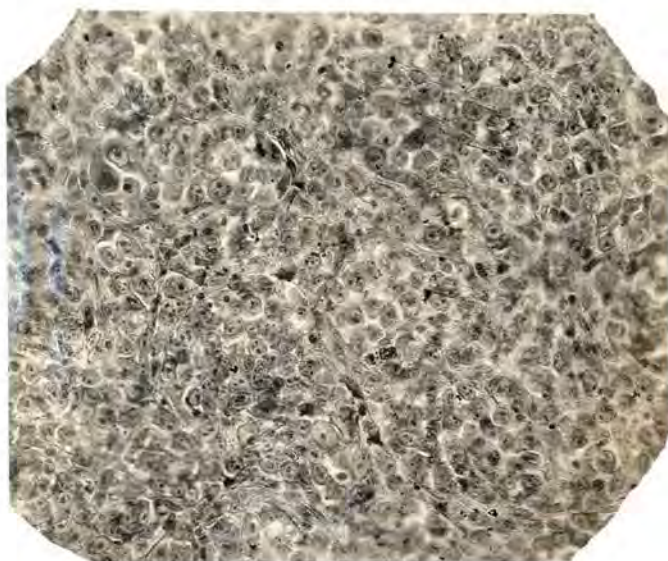


7256E. Basal cell carcinoma. To show the stroma and adenoid arrangement. 6X.

(Skin Cancer of the Angora goat in S.A.)

(A.D. Thomas)

FIG. 37.



7256D. Basal cell carcinoma. Early stage. Closely packed epithelial cells with large round nuclei. Very delicate stroma. 200X,

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 38.



14770. Cancer of anus. Basal cell carcinoma? From a drawing.
Fig. 39.



14770. The same. This tumour was eaten away by fly larvae
Fig. 40.



14770. The same animal after complete healing up of perineum.

Fig. 41.



9983. Papillomatous growth.
Note alternate atrophy and hypertrophy of epidermis. Also the proliferation of basal cells in the large sebaceous glands beneath epidermis. 8X.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas)

FIG. 42.



14505. Lacerated wound of vulva
inflicted by horning seven
months before.

Fig. 43.



14505. The same, 19 months
after horning took place. No
tendency to heal, slight swell-
ing and superficial excoriations
can be seen.

FIG. 44.



15690. To show pigmented patches of perineal skin.

FIG. 45.



15690. Skin of perineum stretched out to show pitted appearance in glandular region and the small epidermal excrescences sometimes seen.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 46.



Rabbit No. I.

FIG. 47.



Rabbit No. II

FIG. 48.



Rabbit No. III.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

FIG. 49.



Rabbit No. IV.

FIG. 50.



Rabbit No. V.

Hornifying papillomatous growths (folliculo-epithelioma) resulting from painting with coal tar. Goats painted with the same tar on the same dates, showed no change in the skin, even after tar applications during twelve months and over.

(Skin Cancer of Angora Goat in S.A.)

(A.D. Thomas).

SKIN CANCER OF THE ANGORA GOAT IN

A. D. THOMAS

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